Crown Castle
3530 Toringdon Way
Suite 300
Charlotte, NC 28277

Tel: 704-405-6600

www.crowncastle.com

April 10, 2014

Melanie A. Bachman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: **T-Mobile-Exempt Modification - Crown Site BU: 806354**
T-Mobile Site ID: CT11123A
Located at: 21-23 Berkshire Road, Newtown, CT 06470

Dear Ms. Bachman:

This letter and exhibits are submitted on behalf of T-Mobile. T-Mobile is making modifications to certain existing sites in its Connecticut system in order to implement their Modernization technology. Please accept this letter and exhibits as notification, pursuant to § 16-50j-73 of the Regulations of Connecticut State Agencies ("R.C.S.A."), of construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In compliance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Mrs. E. Patricia Llodra, First Selectman of the Town of Newtown.

T-Mobile plans to modify the existing wireless communications facility owned by Crown Castle and located at **21-23 Berkshire Road, Newtown, CT 06470**. Attached are a compound plan and elevation depicting the planned changes (Exhibit-1), and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration (Exhibit-2). Also included is a power density table report reflecting the modification to T-Mobile's operations at the site (Exhibit-3).

The changes to the facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") § 16-50i(d) because the general physical characteristics of the facility will not be significantly changed. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in the R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing tower. T-Mobile's replacement antennas will be located at the same elevation on the existing tower.

2. There will be no proposed modifications to the ground and no extension of boundaries.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative General Power Density table report for T-Mobile's modified facility is included as Exhibit-3.

5. A Structural Modification Report confirming that the tower and foundation can support Sprint's proposed modifications is included as Exhibit-2.

For the foregoing reasons, T-Mobile respectfully submits the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Donna Neal.

Sincerely,

Jeff Barbadora
Real Estate Specialist

Enclosure

Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes
Tab 2: Exhibit-2: Structural Modification Report
Tab 3: Exhibit-3: General Power Density Table Report (RF Emissions Analysis Report)

cc: Mrs. E. Patricia Llodra, First Selectman
Town of Newtown
3 Primrose Street
Newtown, CT 06470

T-Mobile

NORTHEAST LLC.

SITE NAME: NEWTOWN/ I-84 EX 10-11

SITE ID NUMBER: CT11123A

SITE ADDRESS: 21-23 BERKSHIRE RD.
NEWTOWN, CT 06470

PROJECT SUMMARY

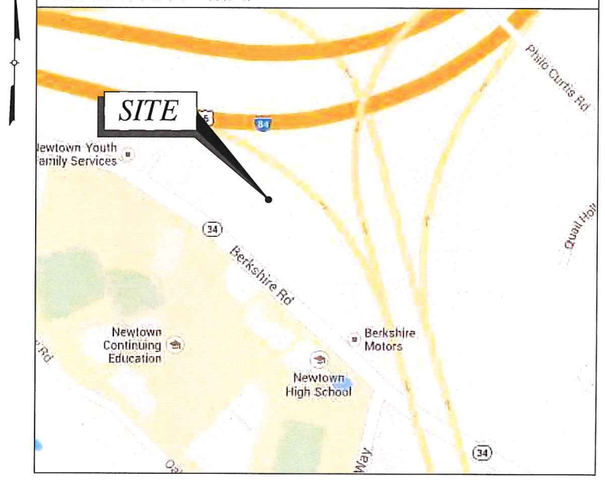
SITE ID NUMBER:	CT11123A
SITE NAME:	NEWTOWN/ I-84 EX 10-11
CROWN BU#:	806354
SITE ADDRESS:	21-23 BERKSHIRE RD. NEWTOWN, CT 06470
COUNTY:	FAIRFIELD
PROPERTY OWNER:	BAM
APPLICANT:	T-MOBILE NORTHEAST, LLC. 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 PHONE: (800) 692-7100
ENGINEER/ SURVEYOR/ STRUCTURAL ENG:	TECTONIC ENGINEERING CONSULTANTS P.C. 1279 ROUTE 300 NEWBURGH, NY 12550
CONTACT: PHONE:	TAMMY NOSEK (845) 567-6656 EXT. 2807
SITE ACQUISITION:	CROWN CASTLE 1200 MACARTHUR BLVD SUITE 200 MAHWAH, NJ 07430
CONTACT: PHONE:	PAUL HUGHES (585) 259-7604
PARCEL INFO:	38-10-3
LATITUDE: (NAD 83)	41.41258° N
LONGITUDE: (NAD 83)	73.27007° W

SITE DIRECTIONS

HEAD NORTHEAST ON GRIFFIN RD S TOWARD W NEWBERRY RD. TAKE THE 1ST RIGHT ONTO W NEWBERRY RD. TURN LEFT ONTO WOODLAND AVE. TAKE THE 1ST RIGHT ONTO CT-187 S/BLUE HILLS AVE. TURN LEFT ONTO CT-178 E/E WINTONBURY AVE. CONTINUE TO FOLLOW CT-178 E. TURN RIGHT TO MERGE ONTO I-91 S TOWARD HARTFORD. TAKE EXIT 32A-32B FOR I-84 W/TRUMBULL ST TOWARD WATERBURY. TAKE EXIT 32A ON THE LEFT FOR I-84 W TOWARD WATERBURY. MERGE ONTO I-84. TAKE EXIT 11 TOWARD CT-34/DERBY/NEW HAVEN. TURN RIGHT ONTO WASSERMAN WAY. TURN LEFT ONTO CT-34 W/BERKSHIRE RD

LOCATION MAP

SCALE: NTS



SHEET INDEX

SHEET NO	DESCRIPTION	REV NO
T-1	TITLE SHEET	1
A-1	SITE PLAN	1
A-2	EQUIPMENT LAYOUT PLANS	1
A-3	ELEVATION & DETAIL	1
A-4	ANTENNA LAYOUT PLANS & DETAILS	1
A-5	DETAILS	1
A-6	DETAILS	1
A-7	NOTES	1
A-8	NOTES	1

THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL ITEMS HAVE BEEN ADDRESSED AND EACH OF THE DRAWINGS HAS BEEN REVISED AND ISSUED "FOR CONSTRUCTION".

811 Know what's **below.** **Call** before you dig.

CONFIGURATION

2C

REFER TO LATEST T-MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

0 1 2 3

ORIGINAL SIZE IN INCHES

TECTONIC
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• SURVEYING
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NEWBURGH, NY 12550
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Fax: (845) 567-8703

T-Mobile
T-MOBILE NORTHEAST LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
PHONE: (860) 692-7100

CROWN CASTLE

APPROVALS

LANDLORD _____
RF _____
CONSTRUCTION _____
OPERATIONS _____
SITE ACQ. _____

PROJECT NUMBER	DESIGNED BY
7061.CT11123A	JQ

REV	DATE	REVISION	DRAWN BY
0	04/07/14	FOR COMMENT	MP
1	04/09/14	FOR CONSTRUCTION	MP

ISSUED BY _____ DATE _____

STATE OF CONNECTICUT
ANTONIO A. GUALTIERI
No. 25406
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

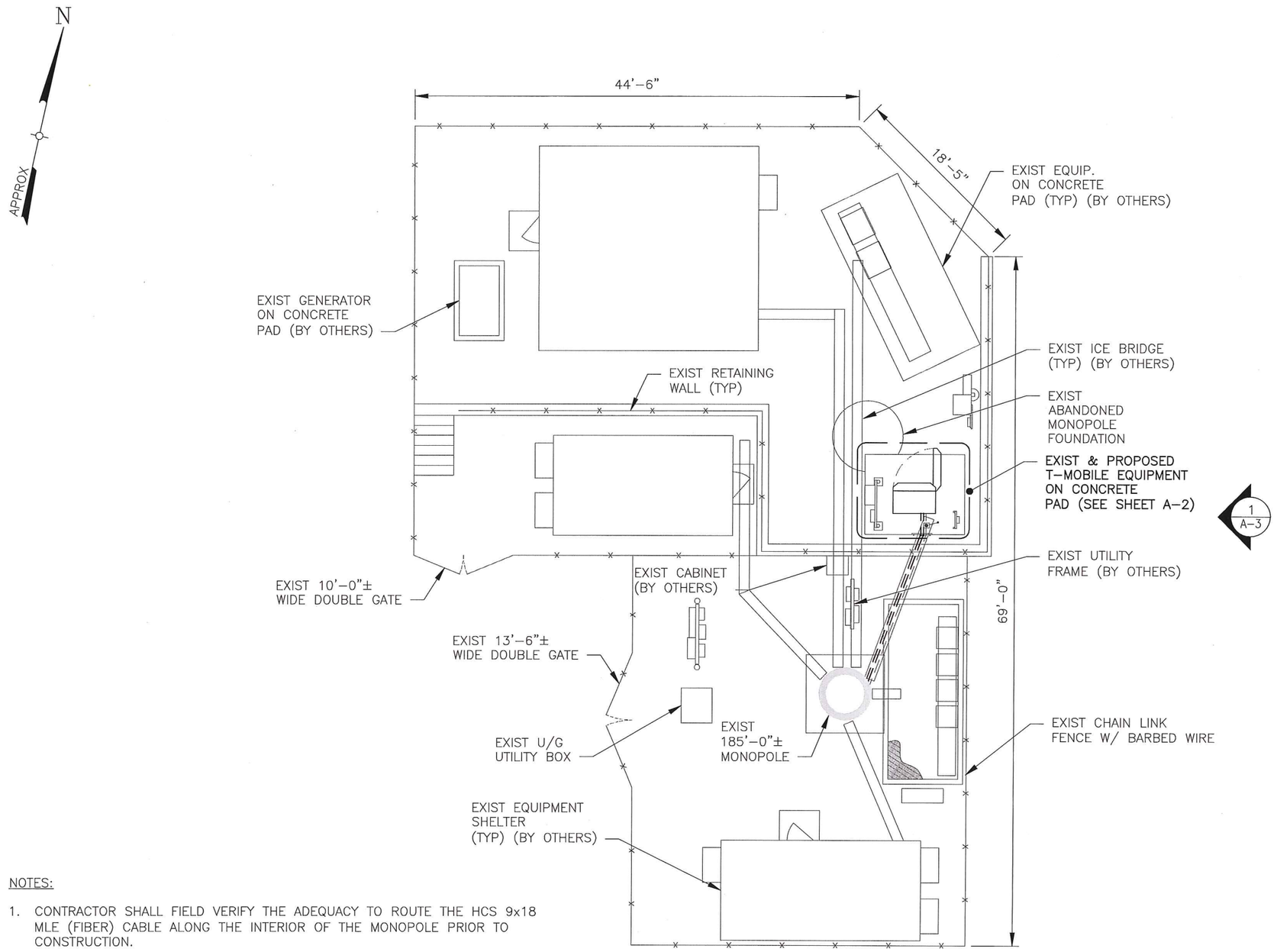
CT11123A
NEWTOWN/ I-84 EX 10-11
21-23 BERKSHIRE RD.
NEWTOWN, CT 06470

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1



1 A-1 SITE PLAN

SCALE: 3/32" = 1'-0'

NOTES:

1. CONTRACTOR SHALL FIELD VERIFY THE ADEQUACY TO ROUTE THE HCS 9x18 MLE (FIBER) CABLE ALONG THE INTERIOR OF THE MONOPOLE PRIOR TO CONSTRUCTION.
2. CONTRACTOR TO MATCH ANTENNA AZIMUTHS AND DOWNTILTS TO EXISTING CONDITION AND NOTIFY RF ENGINEER OF ANY DISCREPANCY.
3. LOCK & TAG BREAKERS FOR ALL EQUIPMENT BEING TURNED OFF (WHEN APPLICABLE).
4. CONTRACTOR TO RE-VERIFY CABLE LENGTHS PRIOR TO CONSTRUCTION.
5. SEE RFDS FOR FINAL EQUIPMENT CONFIGURATION.

CONFIGURATION
2C
REFER TO LATEST T-MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

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NEWTOWN, CT 06470

SHEET TITLE

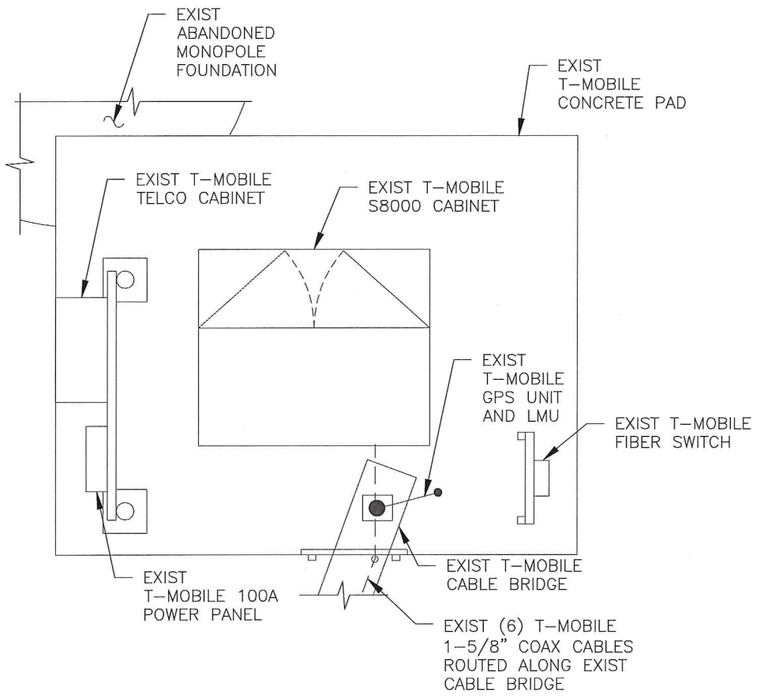
SITE PLAN

SHEET NUMBER

A-1

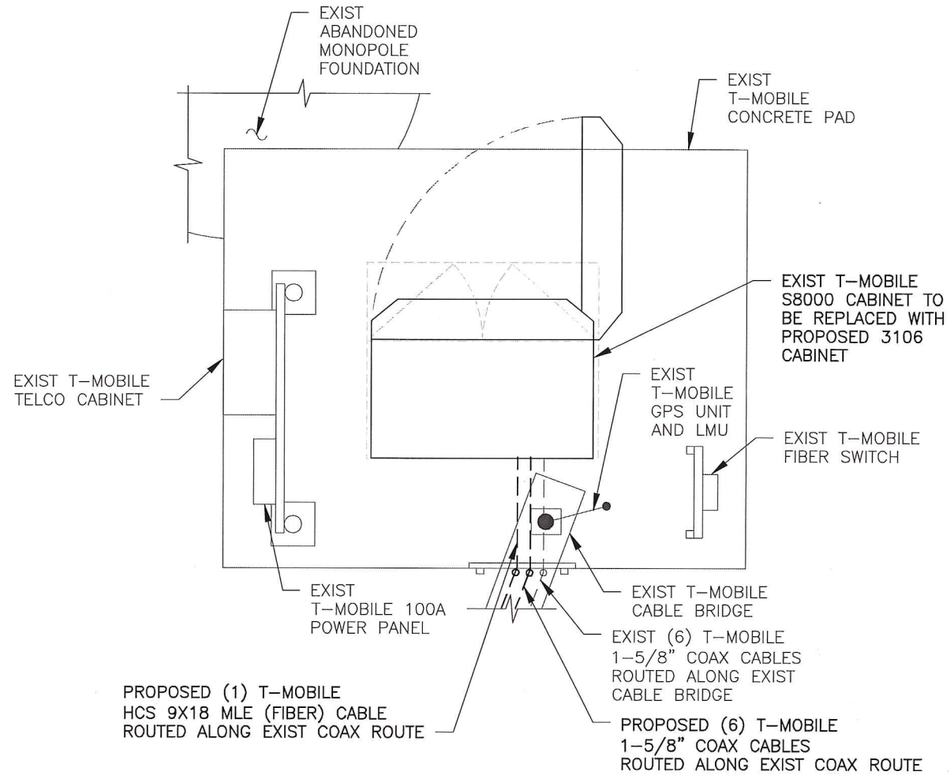
N

APPROX



1 / A–2 EXIST EQUIPMENT PLAN

SCALE: 3/8" = 1'–0'



2 / A–2 PROPOSED EQUIPMENT PLAN

SCALE: 3/8" = 1'–0'

HCS LENGTH			
FROM EQUIPMENT CABINET TO ANTENNA			
SECTOR	ALPHA	BETA	GAMMA
LENGTH	180'±	180'±	180'±
SIZE	1"		
HCS 9x18 MLE			

CONFIGURATION
2C
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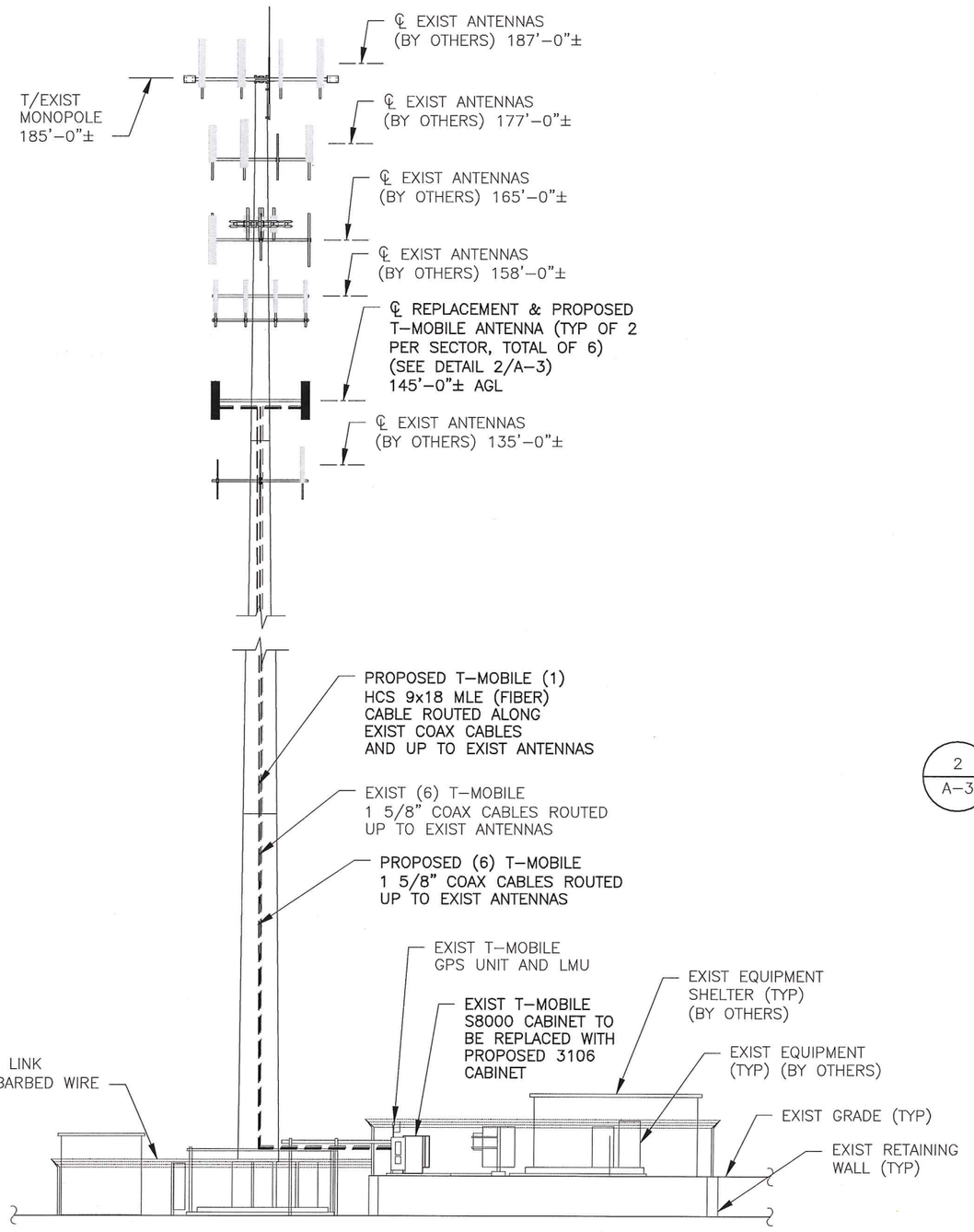
SHEET TITLE

EQUIPMENT LAYOUT PLANS

SHEET NUMBER

A–2

THE PROPOSED INSTALLATION, EXISTING MOUNTS & EXISTING MONOPOLE SHALL BE STRUCTURALLY ANALYZED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT (TO BE COORDINATED BY OTHERS).

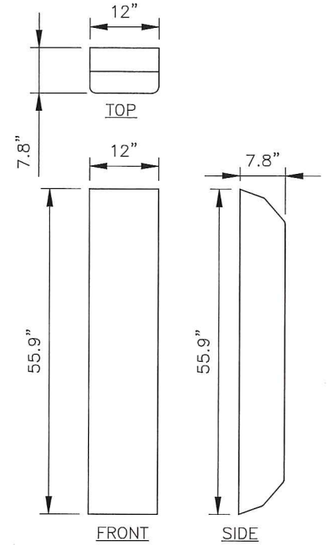


1 / A–3 ELEVATION

SCALE: 1/16" = 1'–0"

ELEVATION NOTE:

ELEVATION OF EXIST MONOPOLE HAS BEEN ARBITRARILY ASSIGNED AS EL 538'–0"±. THIS IS APPROXIMATELY 185'–0"± ABOVE GRADE WHICH WAS ESTIMATED AS EL 353'–0"± TAKEN FROM U.S.G.S. QUAD MAP, AND DOES NOT NECESSARILY CORRESPOND TO ACTUAL ELEVATION ABOVE SEA LEVEL. ALL OTHER ELEVATIONS INDICATED WERE DETERMINED ON THIS BASIS.



AIR 21

2 / A–3 ANTENNA DETAIL

SCALE: 1/2" = 1'–0"

CONFIGURATION

2C

REFER TO LATEST T–MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

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LICENSED PROFESSIONAL ENGINEER

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NEWTOWN/ I–84 EX 10–11
21–23 BERKSHIRE RD.
NEWTOWN, CT 06470

SHEET TITLE

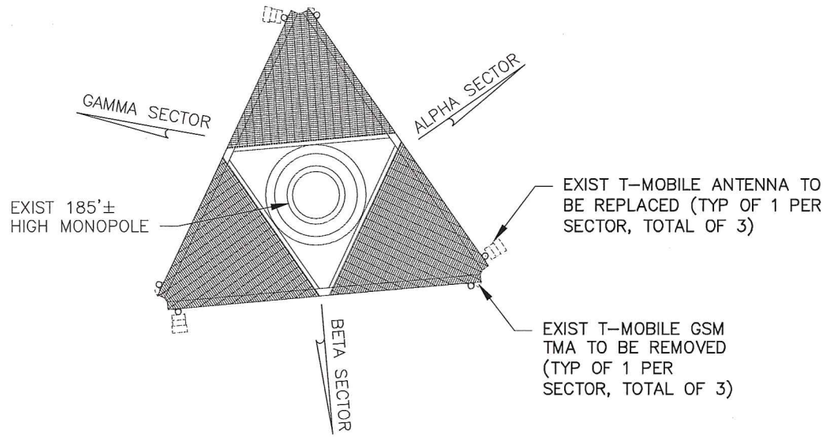
ELEVATION & DETAIL

SHEET NUMBER

A–3

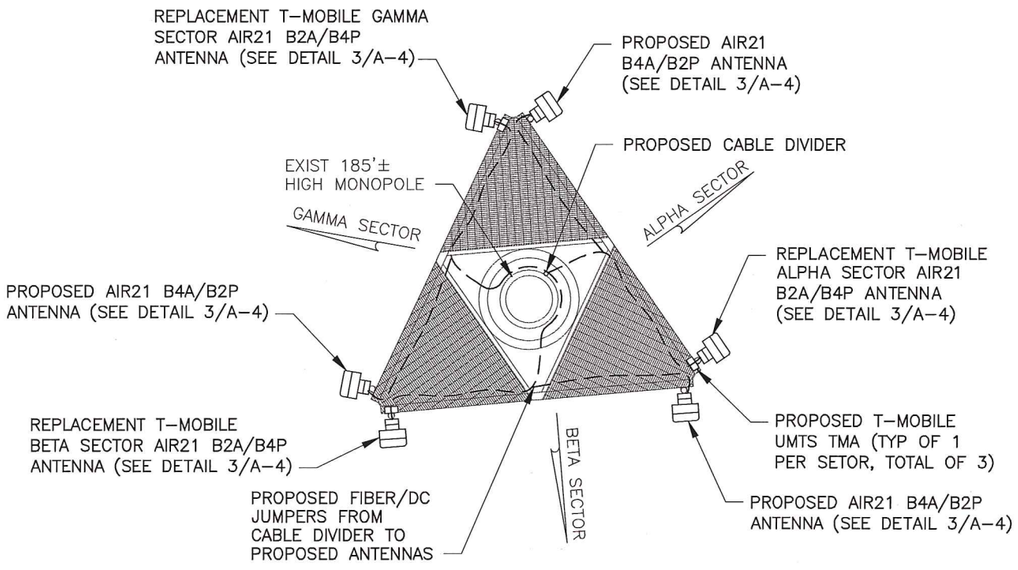
N

APPROX



1 / A–4 EXIST ANTENNA PLAN

SCALE: 3/16" = 1'–0"



2 / A–4 PROPOSED ANTENNA PLAN

SCALE: 3/16" = 1'–0"

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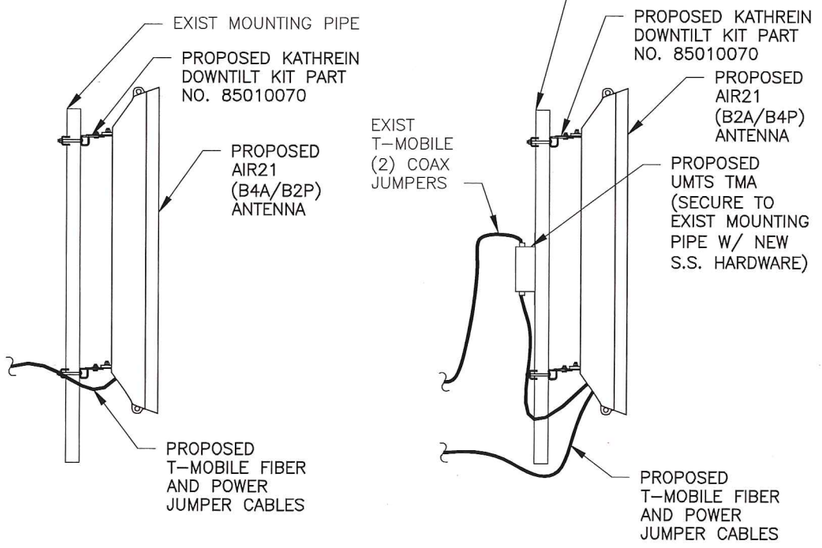
EXIST ANTENNA SCHEDULE				
SECTOR	MAKE	QUANTITY	MODEL#	SIZE
ALPHA	EMS	1	RR90–17–02DP	56x8x2.8
BETA	EMS	1	RR90–17–02DP	56x8x2.8
GAMMA	EMS	1	RR90–17–02DP	56x8x2.8

PROPOSED ANTENNA SCHEDULE				
SECTOR	MAKE	QUANTITY	MODEL#	SIZE
ALPHA	ERICSSON	1	AIR21 B2A/B4P	12x8x56
	ERICSSON	1	AIR21 B4A/B2P	12x8x56
BETA	ERICSSON	1	AIR21 B2A/B4P	12x8x56
	ERICSSON	1	AIR21 B4A/B2P	12x8x56
GAMMA	ERICSSON	1	AIR21 B2A/B4P	12x8x56
	ERICSSON	1	AIR21 B4A/B2P	12x8x56



3 / A–4 ANTENNA DETAIL

SCALE: 1/2" = 1'–0"

CONFIGURATION
2C
REFER TO LATEST T–MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

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T–MOBILE NORTHEAST LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
PHONE: (860) 692–7100

CROWN CASTLE

APPROVALS

LANDLORD _____
RF _____
CONSTRUCTION _____
OPERATIONS _____
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STATE OF CONNECTICUT · ANTONIO A. GUALTIERI · No. 25906 · LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

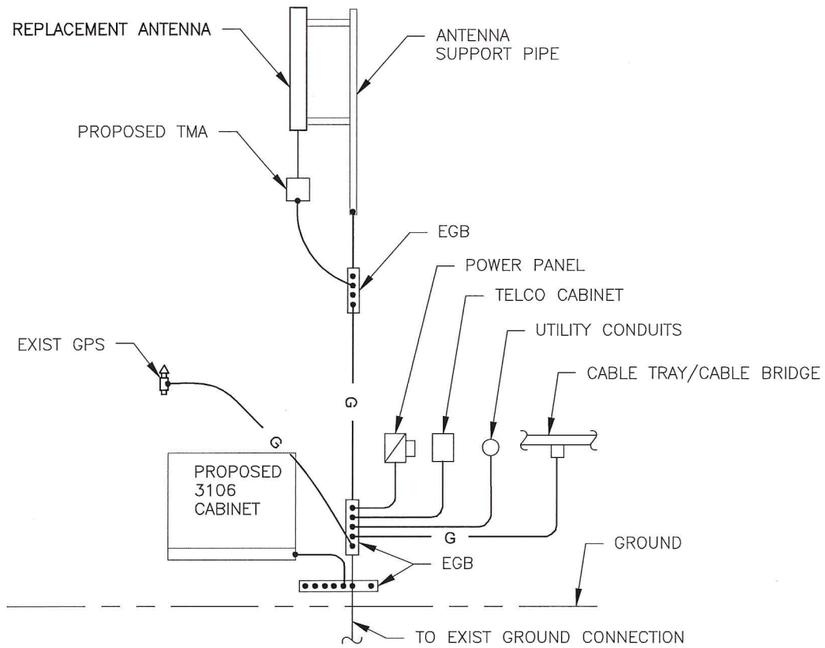
CT11123A
NEWTOWN/ I–84 EX 10–11
21–23 BERKSHIRE RD.
NEWTOWN, CT 06470

SHEET TITLE

ANTENNA LAYOUT PLANS & DETAILS

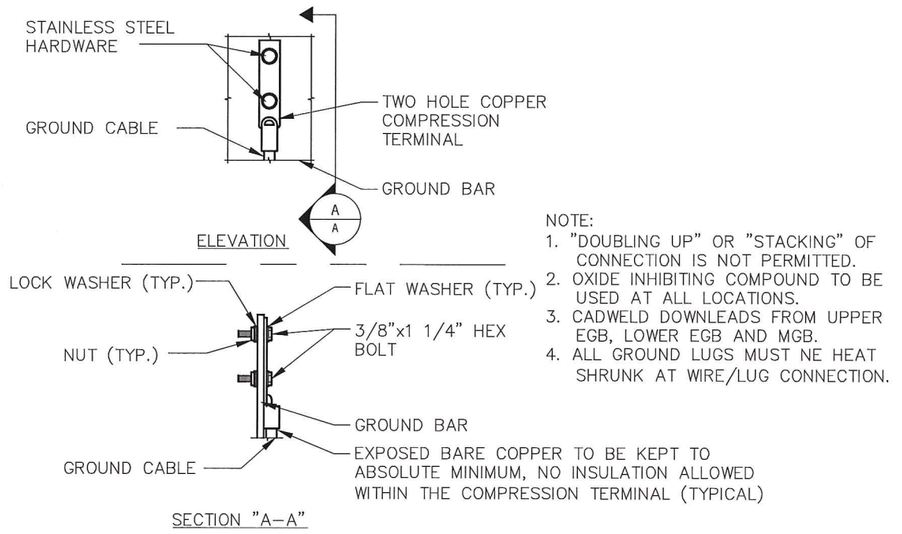
SHEET NUMBER

A–4



1 A–5 GROUNDING RISER DIAGRAM

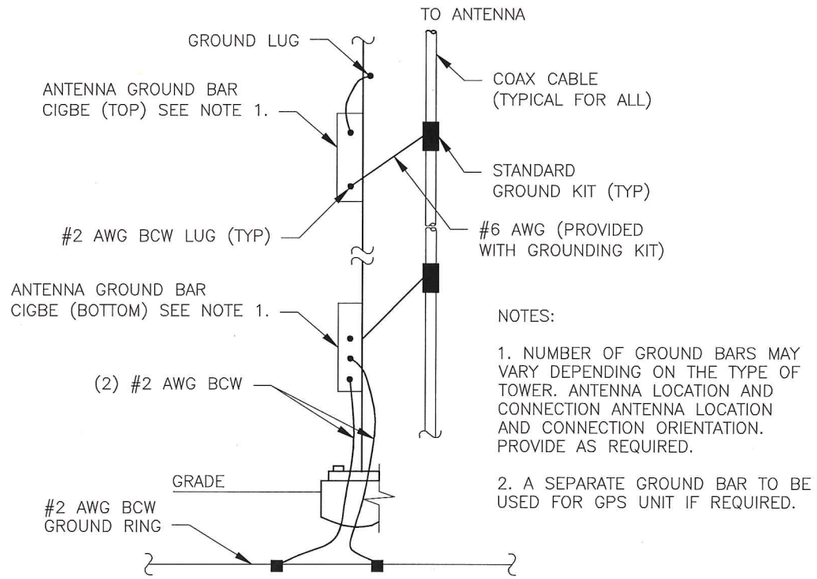
SCALE: NTS



NOTE:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.
4. ALL GROUND LUGS MUST NE HEAT SHRUNK AT WIRE/LUG CONNECTION.

2 A–5 GROUNDING BAR CONN. DETAIL

SCALE: NTS



NOTES:

1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER. ANTENNA LOCATION AND CONNECTION ANTENNA LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.

2. A SEPARATE GROUND BAR TO BE USED FOR GPS UNIT IF REQUIRED.

3 A–5 ANTENNA CABLE GROUNDING

SCALE: NTS

CONFIGURATION
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REFER TO LATEST T–MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

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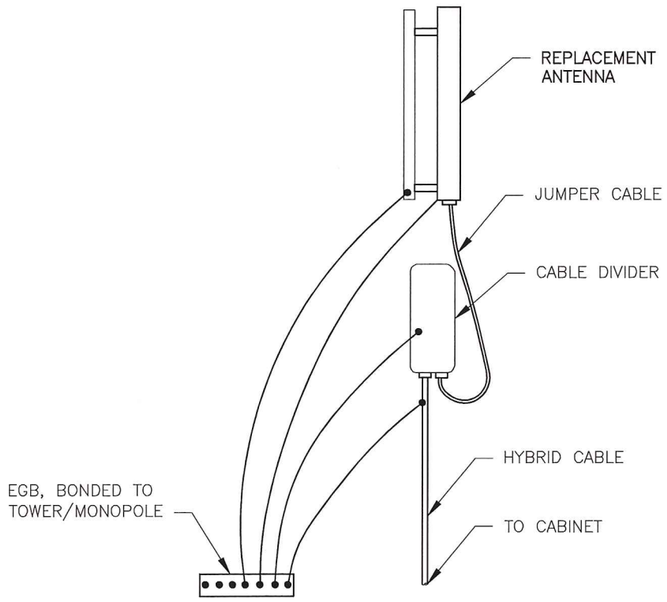
SHEET TITLE

DETAILS

SHEET NUMBER

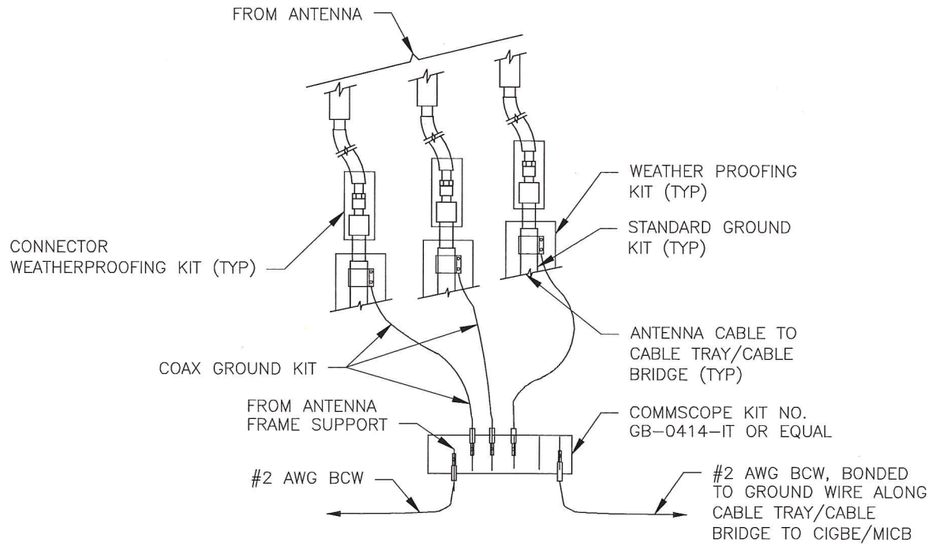
A–5



HYBRID CABLE CONNECTION AND GROUNDING DETAIL

1 / A-6

SCALE: NTS

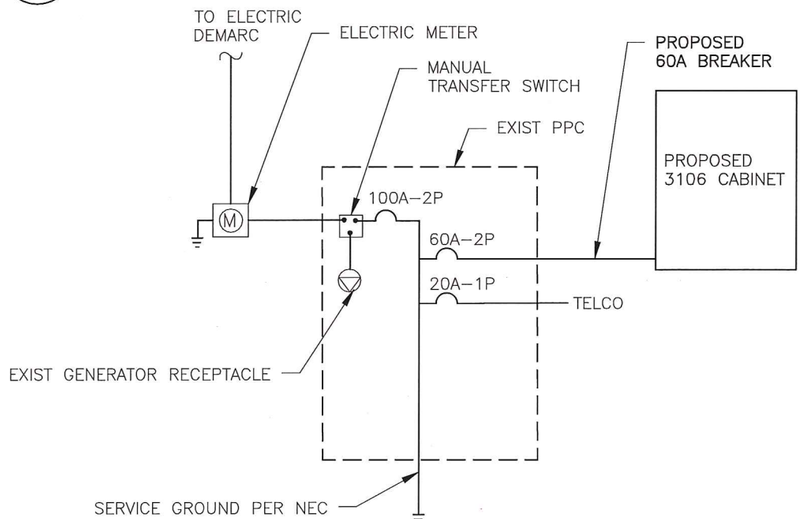


NOTE:
DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

2 / A-6

SCALE: NTS



ONE-LINE POWER DIAGRAM

3 / A-6

SCALE: NTS

CONFIGURATION

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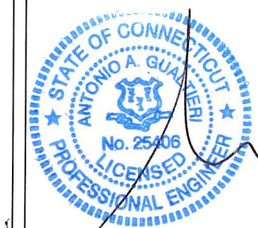

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SHEET TITLE

DETAILS

SHEET NUMBER

A-6

GENERAL NOTES

1. CONTRACTOR SHALL NOT COMMENCE ANY WORK UNTIL HE OBTAINS, AT HIS OWN EXPENSE, ALL INSURANCE REQUIRED BY T–MOBILE, THE PROPERTY OWNER AND/OR PROPERTY MANAGEMENT COMPANY.
2. THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED AND EACH OF THE DRAWINGS HAVE BEEN REVISED TO INDICATE "ISSUED FOR PERMIT"
3. THIS PLAN IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
4. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES OR OTHER PUBLIC AUTHORITIES.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
6. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THIS PROJECT IN ACCORDANCE WITH THE OVERALL INTENT OF THESE DRAWINGS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
8. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
9. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
10. POWER TO THE FACILITY IS MONITORED BY AN EXISTING METER.
11. ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
12. CONTRACTOR SHALL MAKE A UTILITY "ONE CALL" TO LOCATE ALL UTILITIES PRIOR TO EXCAVATING.
13. IF ANY PIPING EXISTS BENEATH THE SITE AREA, CONTRACTOR MUST LOCATE IT AND CONTACT OWNER'S REPRESENTATIVE.
14. THE CONSTRUCTION CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ALL CONSTRUCTION MEANS AND METHODS. THE CONSTRUCTION CONTRACTOR IS ALSO RESPONSIBLE FOR ALL JOB SITE SAFETY.
15. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.
16. THE CONTRACTOR IS TO REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. THE CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUB–CONTRACTORS AND RELATED PARTIES. THE SUB–CONTRACTOR SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
17. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
18. ALL MATERIAL PROVIDED BY T–MOBILE IS TO BE REVIEWED BY THE CONTRACTOR AND ALL APPLICABLE SUB–CONTRACTORS PRIOR TO INSTALLATION. ANY DEFICIENCIES TO PROVIDE MATERIALS SHALL BE BROUGHT TO THE CONSTRUCTION MANAGER'S ATTENTION IMMEDIATELY.
19. THE MATERIALS INSTALLED SHALL MEET REQUIREMENTS OF CONTRACTORS DOCUMENTS. NO SUBSTITUTIONS ARE ALLOWED.
20. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER APPROVAL.

GENERAL NOTES

21. THE CONTRACTOR SHALL RECEIVE CLARIFICATION AND AUTHORIZATION IN WRITING TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONSTRUCTION DOCUMENTS.
22. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND TO BE IN THE FIELD.
23. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMEN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST–ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAND PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
24. THE CONTRACTOR SHALL COORDINATE HIS WORK AND SCHEDULE HIS ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROPERTY OWNER AND/OR PROPERTY MANAGEMENT COMPANY.
25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.
26. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OR WHERE LOCAL CODES OR REGULATIONS MAY TAKE PRECEDENCE.
27. THE CONTRACTOR SHALL REPAIR ALL EXISTING SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND WITH ADJACENT SURFACES.
28. THE CONTRACTOR SHALL KEEP CONTRACT AREA CLEAN, HAZARD FREE AND DISPOSE OF ALL DEBRIS AND RUBBISH. EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OF THE OWNER SHALL BE REMOVED. LEAVE PREMISES IN CLEAN CONDITIONS AND FREE FROM PAINT SPOTS, DUST OR SMUDGES OF ANY NATURE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.
29. BEFORE FINAL ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT, TEMPORARY WORK, UNUSED AND USELESS MATERIALS, RUBBISH AND TEMPORARY STRUCTURES.
30. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE 2005 CONNECTICUT STATE BUILDING CODE (INCLUDING AMENDMENTS) AND ALL OTHER APPLICABLE CODES AND ORDINANCES.
31. CONTRACTOR SHALL VISIT THE JOB SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
32. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT AND APPURTENANCES, AND LABOR NECESSARY TO EFFECT ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
33. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS.
34. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING THE BEST CONSTRUCTION SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.

CONFIGURATION

2C

REFER TO LATEST T–MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

0 1 2 3

ORIGINAL SIZE IN INCHES

TECTONIC

- PLANNING
- ENGINEERING
- SURVEYING
- CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Survey Consultants P.C.
1279 ROUTE 300
NEWBURGH, NY 12550
Phone: (845) 567–6656
Fax: (845) 567–8703

T-Mobile
T–MOBILE NORTHEAST LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
PHONE: (860) 692–7100

CROWN CASTLE

APPROVALS

LANDLORD _____
RF _____
CONSTRUCTION _____
OPERATIONS _____
SITE ACQ. _____

PROJECT NUMBER	DESIGNED BY
7061.CT11123A	JQ

REV	DATE	REVISION	DRAWN BY
0	04/07/14	FOR COMMENT	MP
1	04/09/14	FOR CONSTRUCTION	MP

ISSUED BY	DATE

STATE OF CONNECTICUT
ANTONIO A. GUALTIERI
No. 25406
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

CT11123A
NEWTOWN/ I–84 EX 10–11
21–23 BERKSHIRE RD.
NEWTOWN, CT 06470

SHEET TITLE

NOTES

SHEET NUMBER

A–7

GROUNDING NOTES

1. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES.
2. ALL GROUNDING WORK SHALL BE IN ACCORDANCE WITH T–MOBILE STANDARD PRACTICE.
3. ALL BUS CONNECTORS SHALL BE TWO–HOLE, LONG–BARREL TYPE COMPRESSION LUGS, T&B OR EQUAL, UNLESS OTHERWISE NOTED ON DRAWINGS. ALL LUGS SHALL BE ATTACHED TO BUSSES USING BOLTS, NUTS, AND LOCK WASHERS. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED.
4. ALL CONNECTORS SHALL BE CRIMPED USING HYDRAULIC CRIMPING TOOLS, T&B #TBM 8 OR EQUIVALENT.
5. ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FILED TO ENSURE PROPER CONTACT. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS ARE TO HAVE A NON–OXIDIZING AGENT APPLIED PRIOR TO INSTALLATION.
6. ALL COPPER BUSSES SHALL BE CLEANED, POLISHED, AND A NON–OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.
7. ALL BENDS SHALL BE AS SHALLOW AS POSSIBLE, WITH NO TURN SHORTER THAN AN 8–INCH NOMINAL RADIUS.
8. GROUNDING CONDUCTORS SHALL BE SOLID TINNED COPPER AND ANNEALED #2. ALL GROUNDING CONDUCTORS SHALL RUN THROUGH PVC SLEEVES WHEREVER CONDUCTORS RUN THROUGH WALLS, FLOORS, OR CEILINGS. IF CONDUCTORS MUST RUN THROUGH EMT, BOTH ENDS OF CONDUIT SHALL BE GROUNDED. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.
9. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 10 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE PROJECT MANAGER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE.
10. ALL ROOF TOP ANTENNA MOUNTS SHALL BE GROUNDED WITH A #2 GROUND WIRE CONNECTED TO THE NEAREST GROUND BUS. ALL CONNECTIONS ARE TO BE CAD–WELDED IF POSSIBLE.
11. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO THE PROJECT MANAGER.
12. GROUNDING CONNECTION TO TRAVEL IN A DOWNWARD DIRECTION.
13. ALL EXPOSED #2 WIRE MUST BE TINN NOT BTW.
14. TECTONIC TAKES NO RESPONSIBILITY OR LIABILITY FOR THE GROUNDING SYSTEM AS SHOWN ON THIS SITE. THIS IS A STANDARD GROUNDING SYSTEM.

CONFIGURATION

2C

REFER TO LATEST T–MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

0 1 2 3

ORIGINAL SIZE IN INCHES

TECTONIC

• PLANNING • CONSTRUCTION MANAGEMENT
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LANDLORD _____
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STATE OF CONNECTICUT
ANTONIO A. GUALTIERI
No. 25406
LICENSED
PROFESSIONAL ENGINEER

SITE INFORMATION

CT11123A
NEWTOWN/ I–84 EX 10–11
21–23 BERKSHIRE RD.
NEWTOWN, CT 06470

SHEET TITLE

NOTES

SHEET NUMBER

A–8

Pier Structural Engineering Corp.
55 Northfield Drive E, Suite 198
Waterloo, ON N2K 3T6
Tel: 519-885-3806
Fax: 519-886-0076
www.p-sec.ca

March 27, 2014

Patrick Byrum, Tower Structural Analyst
Crown Castle USA Inc.
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Subject:	**Structural Analysis Report**	
Carrier Designation:	Carrier Co-Locate:	**T-Mobile**
	Carrier Site Number:	**CT11123A**
	Carrier Site Name:	**Newton**
Crown Castle Designation:	Crown Castle BU Number:	**806354**
	Crown Castle Site Name:	**BRG 123 943084**
	Crown Castle JDE Job Number:	**268416**
	Crown Castle WO Number:	**731651**
Engineering Firm Designation:	P-SEC Project Number:	**10862**
Site Data:	**ROUTE 34 - WASHINGTON AVEUNE, NEWTOWN, Fairfield County, CT** **Latitude *41° 24' 45.53"*, Longitude *-73° 16' 12.34"*** **185-ft Monopole Tower**	

Dear Patrick Byrum,

Pier Structural Engineering Corp. (P-SEC) is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 629103, in accordance with application 222738, revision 0.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and CT state Building code requirements based upon a wind speed of 85 mph fastest mile.

We at P-SEC appreciate the opportunity of providing our continuing professional services to you and Crown Castle USA Inc. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:

Ahmed Iftikhar, E.I.T.

Reviewed By:

Pier Structural Engineering Corp.
55 Northfield Drive E, Suite 198
Waterloo, ON N2K 3T6
Tel: 519-885-3806
Fax: 519-886-0076
www.p-sec.ca

March 27, 2014

Patrick Byrum, Tower Structural Analyst
Crown Castle USA Inc.
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Subject:	**Structural Analysis Report**	
Carrier Designation:	Carrier Co-Locate:	**T-Mobile**
	Carrier Site Number:	**CT11123A**
	Carrier Site Name:	**Newton**
Crown Castle Designation:	Crown Castle BU Number:	**806354**
	Crown Castle Site Name:	**BRG 123 943084**
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Respectfully submitted by: Reviewed By:

Ahmed Iftikhar, E.I.T.

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1) INTRODUCTION

This tower is a 185-ft Monopole tower originally designed by ENGINEERED ENDEAVORS, INC. in August of 1999 for a wind speed of 90 mph per TIA/EIA-222-F. The tower was later modified per Vertical Structures Inc. modification drawings dated February of 2009.

2) ANALYSIS CRITERIA

The following design parameters have been used in our analysis:

Design Standard:		TIA/EIA-222-F standard and 2005 CT State Building Code
County/State:		Fairfield County, CT
Wind Speeds:	*CASE 1*	85 mph (fastest mile)
	CASE 2	37.6 mph (fastest mile) with 0.75" radial solid ice *(per ASCE7 ice map)*
	CASE 3	50 mph (fastest mile) for Serviceability
Allowable Stress:		Increased 1/3rd

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
145	148	3	ericsson	ERICSSON AIR 21 B2A B4P	7	1-5/8	1
		3	ericsson	ERICSSON AIR 21 B4A B2P			
		3	ericsson	KRY 112 144/1			

Notes:
1) Proposed equipment

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
185	188	3	alcatel lucent	RRH2X40-AWS	1	1-5/8	2
	187	1	rfs celwave	DB-T1-6Z-8AB-0Z			
		3	antel	BXA-171063-12CF-EDIN-X			
		3	antel	BXA-171063-12BF	12	1-5/8	1
		3	antel	BXA-70063-6CF-2			
		6	decibel	DB846F65ZAXY			
		6	rfs celwave	FD9R6004/2C-3L			
	185	1	---	Platform Mount [LP 601-1]			
		1	---	Side Arm Mount [SO 103-3]			
182	188	1	decibel	ASP-601	1	1/2	1
	182	1	---	Side Arm Mount [SO 102-3]			
175	177	6	ericsson	RRUS-11	12 2 1	1-5/8 5/8 3/8	1
		6	powerwave tech	7770.00			
		6	powerwave tech	LGP2140X			
		3	powerwave tech	P65-16-XLH-RR			
		3	powerwave tech	TT19-08BP111-001			
		1	raycap	DC6-48-60-18-8F			
	175	1	---	Platform Mount [LP 601-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
167	167	3	alcatel lucent	1900MHz RRH (65MHz)	---	---	1
		3	alcatel lucent	800MHZ RRH			
		1	---	Side Arm Mount [SO 102-3]			
165	165	3	alcatel lucent	800 EXTERNAL NOTCH FILTER	3	1-1/4	1
		9	rfs celwave	ACU-A20-N			
		3	rfs celwave	APXVSPP18-C-A20			
		1	---	Platform Mount [LP 601-1]			
155	158	12	decibel	DB844H90	12	1-1/4	1
	155	1	---	Platform Mount [LP 602-1]			
145	148	3	ems wireless	RR90-17-02DP	---	---	2
		6	ericsson	KRY 112 71			
	145	1	---	Platform Mount [LP 601-1]	6	1-5/8	1
135	137	3	kathrein	800 10504	6	1-5/8	1
		3	kathrein	860 10025			
	135	1	---	T-Arm Mount [TA 602-3]			

Notes:
1) Existing equipment
2) Reserved equipment
3) Equipment to be removed

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
185	185	12	swedcom	ALP 9212	--	--
175	175	12	swedcom	ALP 11011	--	--
165	165	9	decibel	DB 980	--	--
155	155	12	swedcom	ALP 9011	--	--
145	145	6	ems wireless	RR65-18	--	--
		1	scala	OGB9-900		
110	110	1	generic	GPS	--	--
50	50	1	generic	GPS	--	--

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Dr. Clarence Welti, dated 2/14/1999	2297011	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	VSI, Proj. No. 2009-004-030 dated 6/12/2009	2381114	CCISITES
4-POST MODIFICATION INSPECTION	VSI, Proj. No. 2009-004-030 dated 6/12/2009	2381114	CCISITES

Document	Remarks	Reference	Source
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	EEI, Proj. No. 4743 dated 7/22/1999	822037	CCISITES
4-TOWER MANUFACTURER DRAWINGS	EEI, Proj. No. GS51352 dated 7/22/1999	822035	CCISITES
APPLICATION	T-Mobile, Revision # 0 dated 03/11/2014	222738	CCISITES

3.1) Analysis Method

tnxTower (6.1.4.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.
5) P-SEC did not analyze antenna supporting mounts as part of this analysis report and assumed they are structurally sufficient. It is the carrier's responsibility to ensure structural compliance of their existing and/or proposed antenna supporting mounts.
6) All equipment model numbers, quantities, and centerline elevations are as provided in the CCI CAD package dated 03/11/2014.

This analysis may be affected if any assumptions are not valid or have been made in error. P-SEC should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	185 - 149.497	Pole	TP36.0404x29x0.25	1	-8.1	1435.5	47.1	Pass
L2	149.497 - 114.096	Pole	TP42.4605x34.5478x0.3125	2	-15.6	2114.7	85.9	Pass
L3	114.096 - 76.6771	Pole	TP49.157x40.6983x0.375	3	-23.7	2938.0	99.2	Pass
L4	76.6771 - 38.2552	Pole	TP55.9285x47.1065x0.4375	4	-34.9	3900.1	100.4	Acceptable
L5	38.2552 - 0	Pole	TP62.5x53.5869x0.5	5	-52.4	5115.2	97.6	Pass
							Summary	
						Pole (L4)	100.4	Acceptable
						Rating =	100.4	Acceptable

Table 6 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
2	Anchor Rods	---	87.4	Pass
2	Base Plate	---	52.6	Pass
2	Base Foundation	---	95.9	Pass

Structure Rating (max from all components) =	100.4 %

Notes: 1) See full member breakdown and section capacities in Appendix A.
2) See additional documentation in Appendix C for supporting calculations.
3) Stresses up to 105% (steel) and 110% (foundations) are within engineering tolerance and considered acceptable.

4.1) Recommendations

The existing 185-ft self-support tower located in Fairfield County (BRG 123 943084) is **structurally acceptable** based on the TIA/EIA-222-F Standard and CT state Building code based upon a wind speed of 85 mph fastest mile.

No modifications are required to the proposed loading.

Should you have any questions, please call us anytime at 519-885-3806.

encl.
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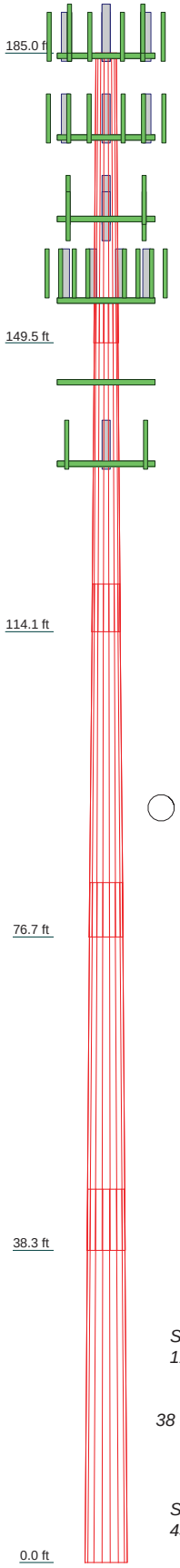
APPENDIX A

TNXTOWER OUTPUT

Section	1	2	3	4	5
Length (ft)	35'6"	40'4-29/32"	43'2-3/4"	45'27/32"	45'9"
Number of Sides	18	18	18	18	18
Thickness (in)	0.2500	0.3125	0.3750	0.4375	0.5000
Socket Length (ft)	5'1/8"	5'9-23/32"	6'7-13/16"	7'5-7/8"	
Top Dia (in)	29.0000	34.5478	40.6983	47.1065	53.5869
Bot Dia (in)	36.0404	42.4605	49.1570	55.9285	62.5000
Grade	A572-65				
Weight (K)	3.1	5.2	7.8	10.9	14.2

41.2



AXIAL
73 K

SHEAR
11 K

MOMENT
1542 kip-ft

TORQUE 0 kip-ft
38 mph WIND - 0.7500 in ICE

AXIAL
52 K

SHEAR
45 K

MOMENT
6296 kip-ft

TORQUE 1 kip-ft
REACTIONS - 85 mph WIND

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

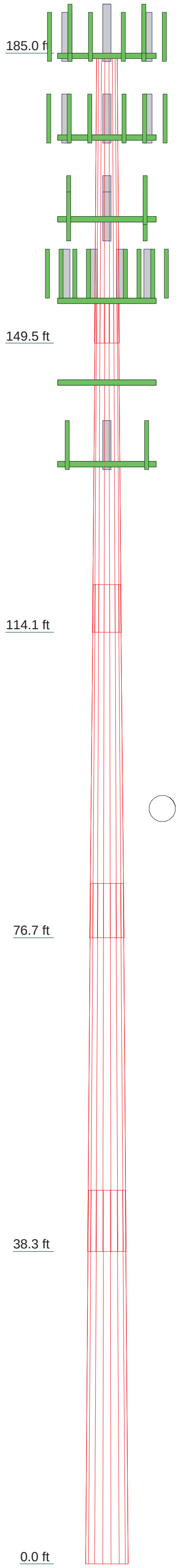
TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. -
6. E - Existing, R - Reserved, P - Proposed
7. Proposed loading revision at 145ft elevation
8. Reserved loading included at 185ft elevation
9. TOWER RATING: 100.4%

Pier Structural Engineering Corp.
55 Northfield Drive E Suite 198
Waterloo, ON N2K 3T6
Phone: (519) 885-3806
FAX: (519) 886-0076
Consulting Engineers

Job: PSEC 10862 (for T-Mobile)
Project: 806354 - BRG 123 943084
Client: CROWN CASTLE | Drawn by: aiftikhar | App'd:
Code: TIA/EIA-222-F | Date: 03/27/14 | Scale: NTS
Path: H:\PROJECTS\JOB 10000 - 10999\JOB 10800 - 10899\10862 - CCI - 806354 - BRG 123 943084\806354_LC7_20140327.eri | Dwg No. E-1

Section	1	2	3	4	5	
Length (ft)	35'6"	40'4-29/32"	43'2-3/4"	45'27/32"	45'9"	
Number of Sides	18	18	18	18	18	
Thickness (in)	0.2500	0.3125	0.3750	0.4375	0.5000	
Socket Length (ft)	5'1/8"	5'9-23/32"	6'7-13/16"	7'5-7/8"		
Top Dia (in)	29.0000	34.5478	40.6983	47.1065	53.5869	
Bot Dia (in)	36.0404	42.4605	49.1570	55.9285	62.5000	
Grade	A572-65					
Weight (K)	3.1	5.2	7.8	10.9	14.2	41.2



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) DB846F65ZAXY w/ Mount Pipe (Carrier 185' E)	185	1900MHz RRH (65MHz) (Carrier 167' E)	167
(2) DB846F65ZAXY w/ Mount Pipe (Carrier 185' E)	185	800MHZ RRH (Carrier 167' E)	167
(2) DB846F65ZAXY w/ Mount Pipe (Carrier 185' E)	185	800MHZ RRH (Carrier 167' E)	167
BXA-171063-12BF w/ Mount Pipe (Carrier 185' E)	185	800MHZ RRH (Carrier 167' E)	167
BXA-171063-12BF w/ Mount Pipe (Carrier 185' E)	185	Side Arm Mount [SO 102-3] (Carrier 167' E)	167
BXA-171063-12BF w/ Mount Pipe (Carrier 185' E)	185	APXVSPP18-C-A20 w/ Mount Pipe (Carrier 165' E)	165
BXA-70063-6CF-2 w/ Mount Pipe (Carrier 185' E)	185	APXVSPP18-C-A20 w/ Mount Pipe (Carrier 165' E)	165
BXA-70063-6CF-2 w/ Mount Pipe (Carrier 185' E)	185	APXVSPP18-C-A20 w/ Mount Pipe (Carrier 165' E)	165
BXA-70063-6CF-2 w/ Mount Pipe (Carrier 185' E)	185	(3) ACU-A20-N (Carrier 165' E)	165
(2) FD9R6004/2C-3L (Carrier 185' E)	185	(3) ACU-A20-N (Carrier 165' E)	165
(2) FD9R6004/2C-3L (Carrier 185' E)	185	(3) ACU-A20-N (Carrier 165' E)	165
(2) FD9R6004/2C-3L (Carrier 185' E)	185	800 EXTERNAL NOTCH FILTER (Carrier 165' E)	165
BXA-171063-12CF-EDIN-X w/ Mount Pipe (Carrier 185' R)	185	800 EXTERNAL NOTCH FILTER (Carrier 165' E)	165
BXA-171063-12CF-EDIN-X w/ Mount Pipe (Carrier 185' R)	185	800 EXTERNAL NOTCH FILTER (Carrier 165' E)	165
BXA-171063-12CF-EDIN-X w/ Mount Pipe (Carrier 185' R)	185	6' x 2" Mount Pipe (Carrier 165' E)	165
RRH2X40-AWS (Carrier 185' R)	185	6' x 2" Mount Pipe (Carrier 165' E)	165
RRH2X40-AWS (Carrier 185' R)	185	6' x 2" Mount Pipe (Carrier 165' E)	165
RRH2X40-AWS (Carrier 185' R)	185	Platform Mount [LP 601-1] (Carrier 165' E)	165
DB-T1-6Z-8AB-0Z (Carrier 185' R)	185	(4) DB844H90 w/ Mount Pipe (Carrier 155' E)	155
Platform Mount [LP 601-1] (Carrier 185' E)	185	(4) DB844H90 w/ Mount Pipe (Carrier 155' E)	155
Side Arm Mount [SO 103-3] (Carrier 185' E)	185	(4) DB844H90 w/ Mount Pipe (Carrier 155' E)	155
ASP-601 (Carrier 182'E)	182	Platform Mount [LP 602-1] (Carrier 155' E)	155
Side Arm Mount [SO 102-3] (Carrier 182'E)	182	ERICSSON AIR 21 B2A B4P w/ Mount Pipe (Carrier 145' P)	145
(2) 7770.00 w/ Mount Pipe (Carrier 175' E)	175	ERICSSON AIR 21 B2A B4P w/ Mount Pipe (Carrier 145' P)	145
(2) 7770.00 w/ Mount Pipe (Carrier 175' E)	175	ERICSSON AIR 21 B2A B4P w/ Mount Pipe (Carrier 145' P)	145
(2) 7770.00 w/ Mount Pipe (Carrier 175' E)	175	ERICSSON AIR 21 B4A B2P w/ Mount Pipe (Carrier 145' P)	145
P65-16-XLH-RR w/ Mount Pipe (Carrier 175' E)	175	ERICSSON AIR 21 B4A B2P w/ Mount Pipe (Carrier 145' P)	145
P65-16-XLH-RR w/ Mount Pipe (Carrier 175' E)	175	ERICSSON AIR 21 B4A B2P w/ Mount Pipe (Carrier 145' P)	145
P65-16-XLH-RR w/ Mount Pipe (Carrier 175' E)	175	KRY 112 144/1 (Carrier 145' P)	145
(2) LGP2140X (Carrier 175' E)	175	KRY 112 144/1 (Carrier 145' P)	145
(2) LGP2140X (Carrier 175' E)	175	KRY 112 144/1 (Carrier 145' P)	145
(2) LGP2140X (Carrier 175' E)	175	Platform Mount [LP 601-1] (Carrier 145' E)	145
(2) RRUS-11 (Carrier 175' E)	175	800 10504 w/ Mount Pipe (Carrier 135' E)	135
(2) RRUS-11 (Carrier 175' E)	175	800 10504 w/ Mount Pipe (Carrier 135' E)	135
(2) RRUS-11 (Carrier 175' E)	175	800 10504 w/ Mount Pipe (Carrier 135' E)	135
TT19-08BP111-001 (Carrier 175' E)	175	860 10025 (Carrier 135' E)	135
TT19-08BP111-001 (Carrier 175' E)	175	860 10025 (Carrier 135' E)	135
TT19-08BP111-001 (Carrier 175' E)	175	860 10025 (Carrier 135' E)	135
DC6-48-60-18-8F (Carrier 175' E)	175	(2) 6' x 2" Mount Pipe (Carrier 135' E)	135
Platform Mount [LP 601-1] (Carrier 175' E)	175	(2) 6' x 2" Mount Pipe (Carrier 135' E)	135
1900MHz RRH (65MHz) (Carrier 167' E)	167	(2) 6' x 2" Mount Pipe (Carrier 135' E)	135
1900MHz RRH (65MHz) (Carrier 167' E)	167	T-Arm Mount [TA 602-3] (Carrier 135' E)	135

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. -
6. E - Existing, R - Reserved, P - Proposed
7. Proposed loading revision at 145ft elevation
8. Reserved loading included at 185ft elevation

P-SEC
Pier Structural Engineering Corp.
Consulting Engineers
55 Northfield Drive E Suite 198
Waterloo, ON N2K 3T6
Phone: (519) 885-3806
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Job: *PSEC 10862 (for T-Mobile)*			
Project: *806354 - BRG 123 943084*			
Client: CROWN CASTLE	Drawn by: aiftikhar	App'd:	
Code: TIA/EIA-222-F	Date: 03/27/14	Scale: NTS	
Path: H:\PROJECTS\JOB 10000 - 10999\JOB 10800 - 10899\10862 - CCI - 806354 - BRG 123 943084\806354_LC7_20140327.eri		Dwg No. E-1	

Tower Input Data

There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
- -.
E - Existing, R - Reserved, P - Proposed.
Proposed loading revision at 185ft elevation.
Reserved loading included at 145ft elevation.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs
Consider Moments - Horizontals
Consider Moments - Diagonals
Use Moment Magnification
√ Use Code Stress Ratios
√ Use Code Safety Factors - Guys
√ Escalate Ice
Always Use Max Kz
Use Special Wind Profile
√ Include Bolts In Member Capacity
Leg Bolts Are At Top Of Section
√ Secondary Horizontal Braces Leg
√ Use Diamond Inner Bracing (4 Sided)
Add IBC .6D+W Combination

Distribute Leg Loads As Uniform
Assume Legs Pinned
√ Assume Rigid Index Plate
√ Use Clear Spans For Wind Area
√ Use Clear Spans For KL/r
Retension Guys To Initial Tension
√ Bypass Mast Stability Checks
√ Use Azimuth Dish Coefficients
√ Project Wind Area of Appurt.
√ Autocalc Torque Arm Areas
SR Members Have Cut Ends
√ Sort Capacity Reports By Component
√ Triangulate Diamond Inner Bracing
Use TIA-222-G Tension Splice Capacity Exemption

Treat Feedline Bundles As Cylinder
Use ASCE 10 X-Brace Ly Rules
√ Calculate Redundant Bracing Forces
Ignore Redundant Members in FEA
SR Leg Bolts Resist Compression
√ All Leg Panels Have Same Allowable
Offset Girt At Foundation
√ Consider Feedline Torque
√ Include Angle Block Shear Check

Poles

Include Shear-Torsion Interaction
Always Use Sub-Critical Flow
Use Top Mounted Sockets

Tapered Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Splice Length* *ft*	*Number of Sides*	*Top Diameter* *in*	*Bottom Diameter* *in*	*Wall Thickness* *in*	*Bend Radius* *in*	*Pole Grade*
L1	185'-149'6"	35'6"	5'1/8"	18	29.0000	36.0404	0.2500	1.0000	A572-65 (65 ksi)
L2	149'6"-114'1-3/16"	40'4-29/32"	5'9-23/32"	18	34.5478	42.4605	0.3125	1.2500	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L3	114'1-3/16"-76'8-5/32"	43'2-3/4"	6'7-13/16"	18	40.6983	49.1570	0.3750	1.5000	A572-65 (65 ksi)
L4	76'8-5/32"-38'3-1/8"	45'27/32"	7'5-7/8"	18	47.1065	55.9285	0.4375	1.7500	A572-65 (65 ksi)
L5	38'3-1/8"-0'	45'9"		18	53.5869	62.5000	0.5000	2.0000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	29.4474	22.8131	2382.3081	10.2063	14.7320	161.7098	4767.7509	11.4087	4.6640	18.656
	36.5964	28.3997	4596.0425	12.7056	18.3085	251.0329	9198.1326	14.2025	5.9031	23.612
L2	36.0761	33.9572	5028.2644	12.1535	17.5503	286.5059	10063.1450	16.9818	5.5304	17.697
	43.1155	41.8055	9382.6455	14.9625	21.5699	434.9872	18777.6370	20.9067	6.9230	22.154
L3	42.4800	47.9948	9859.2279	14.3148	20.6747	476.8735	19731.4288	24.0019	6.5029	17.341
	49.9153	58.0628	17456.3904	17.3176	24.9718	699.0454	34935.7504	29.0369	7.9916	21.311
L4	49.1542	64.8058	17832.3445	16.5675	23.9301	745.1843	35688.1533	32.4090	7.5207	17.19
	56.7913	77.0562	29977.1322	19.6993	28.4117	1055.0990	59993.7092	38.5354	9.0734	20.739
L5	55.8958	84.2489	29996.9203	18.8459	27.2221	1101.9306	60033.3114	42.1325	8.5513	17.103
	63.4642	98.3940	47784.7640	22.0100	31.7500	1505.0319	95632.4044	49.2063	10.1200	20.24

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1 185'-149'6"				1	1	1		
L2 149'6"-114'1-3/16"				1	1	1		
L3 114'1-3/16"-76'8-5/32"				1	1	1		
L4 76'8-5/32"-38'3-1/8"				1	1	1		
L5 38'3-1/8"-0'				1	1	1		

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
**********										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
**********								
****								
HJ7-50A(1-5/8")	C	No	Inside Pole	185' - 0'	12	No Ice	0.00	0.00
(Carrier 185' E)						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
HB158-1-08U8-S8J18(	C	No	CaAa (Out Of	185' - 0'	1	No Ice	0.00	0.00
1-5/8)			Face)			1/2" Ice	0.00	0.00
(Carrier 185' R)						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
***								
LDF4P-50A(1/2")	C	No	Inside Pole	182' - 0'	1	No Ice	0.00	0.00
(Carrier 182' E)						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
***								
CR 50 1873PE(1-5/8")	C	No	CaAa (Out Of	175' - 0'	12	No Ice	0.02	0.20
(Carrier 175' E)			Face)			1/2" Ice	0.02	0.20
						1" Ice	0.03	0.20
						2" Ice	0.03	0.20
						4" Ice	0.05	0.20
FB-L98B-002-75000(	C	No	Inside Pole	175' - 0'	1	No Ice	0.00	0.00
3/8")						1/2" Ice	0.00	0.00
(Carrier 175' E)						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
WR-VG82ST-BRDA(	C	No	Inside Pole	175' - 0'	2	No Ice	0.00	0.00
5/8")						1/2" Ice	0.00	0.00
(Carrier 175' E)						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
***								
HB114-1-0813U4-M5J(	C	No	Inside Pole	165' - 0'	3	No Ice	0.00	0.00
1 1/4")						1/2" Ice	0.00	0.00
(Carrier 165' E)						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
***								
LDF6-50A(1-1/4")	B	No	Inside Pole	155' - 0'	12	No Ice	0.00	0.00
(Carrier 155' E)						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
***								
LDF7-50A(1-5/8")	A	No	Inside Pole	145' - 0'	6	No Ice	0.00	0.00
(Carrier 145' E)						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
AVA7-50(1-5/8)	A	No	Inside Pole	145' - 0'	7	No Ice	0.00	0.00
(Carrier 145' P)						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
***								
CR 50 1873(1-5/8")	A	No	Inside Pole	135' - 0'	6	No Ice	0.00	0.00
(Carrier 135' E)						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
********** *****								

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
********** **********									
(2) DB846F65ZAXY w/ Mount Pipe (Carrier 185' E)	A	From Leg	4.00 0' 2'	0.0000	185'	No Ice	7.27	7.82	0.0
						1/2" Ice	7.88	9.01	0.1
						1" Ice	8.48	9.91	0.2
						2" Ice	9.72	11.81	0.4
						4" Ice	12.33	15.98	0.9
(2) DB846F65ZAXY w/ Mount Pipe (Carrier 185' E)	B	From Leg	4.00 0' 2'	0.0000	185'	No Ice	7.27	7.82	0.0
						1/2" Ice	7.88	9.01	0.1
						1" Ice	8.48	9.91	0.2
						2" Ice	9.72	11.81	0.4
						4" Ice	12.33	15.98	0.9
(2) DB846F65ZAXY w/ Mount Pipe (Carrier 185' E)	C	From Leg	4.00 0' 2'	0.0000	185'	No Ice	7.27	7.82	0.0
						1/2" Ice	7.88	9.01	0.1
						1" Ice	8.48	9.91	0.2
						2" Ice	9.72	11.81	0.4
						4" Ice	12.33	15.98	0.9
BXA-171063-12BF w/ Mount Pipe (Carrier 185' E)	A	From Leg	4.00 0' 2'	0.0000	185'	No Ice	4.97	5.23	0.0
						1/2" Ice	5.52	6.39	0.1
						1" Ice	6.04	7.26	0.1
						2" Ice	7.09	9.05	0.3
						4" Ice	9.36	12.82	0.7
BXA-171063-12BF w/ Mount Pipe (Carrier 185' E)	B	From Leg	4.00 0' 2'	0.0000	185'	No Ice	4.97	5.23	0.0
						1/2" Ice	5.52	6.39	0.1
						1" Ice	6.04	7.26	0.1
						2" Ice	7.09	9.05	0.3
						4" Ice	9.36	12.82	0.7
BXA-171063-12BF w/ Mount Pipe (Carrier 185' E)	C	From Leg	4.00 0' 2'	0.0000	185'	No Ice	4.97	5.23	0.0
						1/2" Ice	5.52	6.39	0.1
						1" Ice	6.04	7.26	0.1
						2" Ice	7.09	9.05	0.3
						4" Ice	9.36	12.82	0.7
BXA-70063-6CF-2 w/ Mount Pipe (Carrier 185' E)	A	From Leg	4.00 0' 2'	0.0000	185'	No Ice	7.97	5.80	0.0
						1/2" Ice	8.61	6.95	0.1
						1" Ice	9.22	7.82	0.2
						2" Ice	10.46	9.60	0.3
						4" Ice	13.07	13.37	0.8
BXA-70063-6CF-2 w/ Mount Pipe (Carrier 185' E)	B	From Leg	4.00 0' 2'	0.0000	185'	No Ice	7.97	5.80	0.0
						1/2" Ice	8.61	6.95	0.1
						1" Ice	9.22	7.82	0.2
						2" Ice	10.46	9.60	0.3
						4" Ice	13.07	13.37	0.8
BXA-70063-6CF-2 w/ Mount Pipe	C	From Leg	4.00 0'	0.0000	185'	No Ice	7.97	5.80	0.0
						1/2" Ice	8.61	6.95	0.1

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(Carrier 185' E)			2'			1" Ice	9.22	7.82	0.2
						2" Ice	10.46	9.60	0.3
						4" Ice	13.07	13.37	0.8
(2) FD9R6004/2C-3L	A	From Leg	4.00	0.0000	185'	No Ice	0.37	0.08	0.0
(Carrier 185' E)			0'			1/2" Ice	0.45	0.14	0.0
			2'			1" Ice	0.54	0.20	0.0
						2" Ice	0.75	0.34	0.0
						4" Ice	1.28	0.74	0.1
(2) FD9R6004/2C-3L	B	From Leg	4.00	0.0000	185'	No Ice	0.37	0.08	0.0
(Carrier 185' E)			0'			1/2" Ice	0.45	0.14	0.0
			2'			1" Ice	0.54	0.20	0.0
						2" Ice	0.75	0.34	0.0
						4" Ice	1.28	0.74	0.1
(2) FD9R6004/2C-3L	C	From Leg	4.00	0.0000	185'	No Ice	0.37	0.08	0.0
(Carrier 185' E)			0'			1/2" Ice	0.45	0.14	0.0
			2'			1" Ice	0.54	0.20	0.0
						2" Ice	0.75	0.34	0.0
						4" Ice	1.28	0.74	0.1
BXA-171063-12CF-EDIN-X	A	From Leg	4.00	0.0000	185'	No Ice	5.03	5.29	0.0
w/ Mount Pipe			0'			1/2" Ice	5.58	6.46	0.1
(Carrier 185' R)			2'			1" Ice	6.10	7.35	0.1
						2" Ice	7.17	9.15	0.3
						4" Ice	9.44	12.95	0.7
BXA-171063-12CF-EDIN-X	B	From Leg	4.00	0.0000	185'	No Ice	5.03	5.29	0.0
w/ Mount Pipe			0'			1/2" Ice	5.58	6.46	0.1
(Carrier 185' R)			2'			1" Ice	6.10	7.35	0.1
						2" Ice	7.17	9.15	0.3
						4" Ice	9.44	12.95	0.7
BXA-171063-12CF-EDIN-X	C	From Leg	4.00	0.0000	185'	No Ice	5.03	5.29	0.0
w/ Mount Pipe			0'			1/2" Ice	5.58	6.46	0.1
(Carrier 185' R)			2'			1" Ice	6.10	7.35	0.1
						2" Ice	7.17	9.15	0.3
						4" Ice	9.44	12.95	0.7
RRH2X40-AWS	A	From Leg	4.00	0.0000	185'	No Ice	2.98	1.60	0.0
(Carrier 185' R)			0'			1/2" Ice	3.24	1.82	0.1
			3'			1" Ice	3.50	2.06	0.1
						2" Ice	4.07	2.56	0.1
						4" Ice	5.30	3.66	0.3
RRH2X40-AWS	B	From Leg	4.00	0.0000	185'	No Ice	2.98	1.60	0.0
(Carrier 185' R)			0'			1/2" Ice	3.24	1.82	0.1
			3'			1" Ice	3.50	2.06	0.1
						2" Ice	4.07	2.56	0.1
						4" Ice	5.30	3.66	0.3
RRH2X40-AWS	C	From Leg	4.00	0.0000	185'	No Ice	2.98	1.60	0.0
(Carrier 185' R)			0'			1/2" Ice	3.24	1.82	0.1
			3'			1" Ice	3.50	2.06	0.1
						2" Ice	4.07	2.56	0.1
						4" Ice	5.30	3.66	0.3
DB-T1-6Z-8AB-0Z	B	From Leg	4.00	0.0000	185'	No Ice	5.60	2.33	0.0
(Carrier 185' R)			0'			1/2" Ice	5.92	2.56	0.1
			2'			1" Ice	6.24	2.79	0.1
						2" Ice	6.91	3.28	0.2
						4" Ice	8.37	4.37	0.5
Platform Mount [LP 601-1]	C	None		0.0000	185'	No Ice	28.47	28.47	1.1
(Carrier 185' E)						1/2" Ice	33.59	33.59	1.5
						1" Ice	38.71	38.71	1.9
						2" Ice	48.95	48.95	2.7

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						4" Ice	69.43	69.43	4.3
Side Arm Mount [SO 103-3]	C	None		0.0000	185'	No Ice	9.50	9.50	0.2
(Carrier 185' E)						1/2" Ice	11.80	11.80	0.3
						1" Ice	14.10	14.10	0.4
						2" Ice	18.70	18.70	0.6
						4" Ice	27.90	27.90	1.0
***									
ASP-601	A	From Leg	1.00	0.0000	182'	No Ice	2.34	2.34	0.0
(Carrier 182'E)			0'			1/2" Ice	4.21	4.21	0.0
			6'			1" Ice	6.08	6.08	0.0
						2" Ice	9.83	9.83	0.1
						4" Ice	17.32	17.32	0.1
Side Arm Mount [SO 102-3]	A	None		0.0000	182'	No Ice	3.00	3.00	0.1
(Carrier 182'E)						1/2" Ice	3.48	3.48	0.1
						1" Ice	3.96	3.96	0.1
						2" Ice	4.92	4.92	0.2
						4" Ice	6.84	6.84	0.3
***									
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00	0.0000	175'	No Ice	6.12	4.25	0.1
(Carrier 175' E)			0'			1/2" Ice	6.63	5.01	0.1
			2'			1" Ice	7.13	5.71	0.2
						2" Ice	8.16	7.16	0.3
						4" Ice	10.36	10.41	0.7
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00	0.0000	175'	No Ice	6.12	4.25	0.1
(Carrier 175' E)			0'			1/2" Ice	6.63	5.01	0.1
			2'			1" Ice	7.13	5.71	0.2
						2" Ice	8.16	7.16	0.3
						4" Ice	10.36	10.41	0.7
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00	0.0000	175'	No Ice	6.12	4.25	0.1
(Carrier 175' E)			0'			1/2" Ice	6.63	5.01	0.1
			2'			1" Ice	7.13	5.71	0.2
						2" Ice	8.16	7.16	0.3
						4" Ice	10.36	10.41	0.7
P65-16-XLH-RR w/ Mount Pipe	A	From Leg	4.00	0.0000	175'	No Ice	8.64	6.36	0.1
(Carrier 175' E)			0'			1/2" Ice	9.29	7.54	0.1
			2'			1" Ice	9.91	8.43	0.2
						2" Ice	11.18	10.24	0.4
						4" Ice	13.83	14.10	0.9
P65-16-XLH-RR w/ Mount Pipe	B	From Leg	4.00	0.0000	175'	No Ice	8.64	6.36	0.1
(Carrier 175' E)			0'			1/2" Ice	9.29	7.54	0.1
			2'			1" Ice	9.91	8.43	0.2
						2" Ice	11.18	10.24	0.4
						4" Ice	13.83	14.10	0.9
P65-16-XLH-RR w/ Mount Pipe	C	From Leg	4.00	0.0000	175'	No Ice	8.64	6.36	0.1
(Carrier 175' E)			0'			1/2" Ice	9.29	7.54	0.1
			2'			1" Ice	9.91	8.43	0.2
						2" Ice	11.18	10.24	0.4
						4" Ice	13.83	14.10	0.9
(2) LGP2140X	A	From Leg	4.00	0.0000	175'	No Ice	1.26	0.38	0.0
(Carrier 175' E)			0'			1/2" Ice	1.42	0.49	0.0
			2'			1" Ice	1.58	0.62	0.0
						2" Ice	1.94	0.89	0.1
						4" Ice	2.75	1.54	0.1
(2) LGP2140X	B	From Leg	4.00	0.0000	175'	No Ice	1.26	0.38	0.0
(Carrier 175' E)			0'			1/2" Ice	1.42	0.49	0.0
			2'			1" Ice	1.58	0.62	0.0
						2" Ice	1.94	0.89	0.1

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						4" Ice	2.75	1.54	0.1
(2) LGP2140X	C	From Leg	4.00	0.0000	175'	No Ice	1.26	0.38	0.0
(Carrier 175' E)			0'			1/2" Ice	1.42	0.49	0.0
			2'			1" Ice	1.58	0.62	0.0
						2" Ice	1.94	0.89	0.1
						4" Ice	2.75	1.54	0.1
(2) RRUS-11	A	From Leg	4.00	0.0000	175'	No Ice	3.25	1.37	0.0
(Carrier 175' E)			0'			1/2" Ice	3.49	1.55	0.1
			2'			1" Ice	3.74	1.74	0.1
						2" Ice	4.27	2.14	0.2
						4" Ice	5.43	3.04	0.3
(2) RRUS-11	B	From Leg	4.00	0.0000	175'	No Ice	3.25	1.37	0.0
(Carrier 175' E)			0'			1/2" Ice	3.49	1.55	0.1
			2'			1" Ice	3.74	1.74	0.1
						2" Ice	4.27	2.14	0.2
						4" Ice	5.43	3.04	0.3
(2) RRUS-11	C	From Leg	4.00	0.0000	175'	No Ice	3.25	1.37	0.0
(Carrier 175' E)			0'			1/2" Ice	3.49	1.55	0.1
			2'			1" Ice	3.74	1.74	0.1
						2" Ice	4.27	2.14	0.2
						4" Ice	5.43	3.04	0.3
TT19-08BP111-001	A	From Leg	4.00	0.0000	175'	No Ice	0.64	0.52	0.0
(Carrier 175' E)			0'			1/2" Ice	0.75	0.62	0.0
			2'			1" Ice	0.87	0.73	0.0
						2" Ice	1.13	0.98	0.0
						4" Ice	1.77	1.58	0.1
TT19-08BP111-001	B	From Leg	4.00	0.0000	175'	No Ice	0.64	0.52	0.0
(Carrier 175' E)			0'			1/2" Ice	0.75	0.62	0.0
			2'			1" Ice	0.87	0.73	0.0
						2" Ice	1.13	0.98	0.0
						4" Ice	1.77	1.58	0.1
TT19-08BP111-001	C	From Leg	4.00	0.0000	175'	No Ice	0.64	0.52	0.0
(Carrier 175' E)			0'			1/2" Ice	0.75	0.62	0.0
			2'			1" Ice	0.87	0.73	0.0
						2" Ice	1.13	0.98	0.0
						4" Ice	1.77	1.58	0.1
DC6-48-60-18-8F	C	From Leg	4.00	0.0000	175'	No Ice	2.57	2.57	0.0
(Carrier 175' E)			0'			1/2" Ice	2.80	2.80	0.0
			2'			1" Ice	3.04	3.04	0.1
						2" Ice	3.54	3.54	0.1
						4" Ice	4.66	4.66	0.3
Platform Mount [LP 601-1]	C	None		0.0000	175'	No Ice	28.47	28.47	1.1
(Carrier 175' E)						1/2" Ice	33.59	33.59	1.5
						1" Ice	38.71	38.71	1.9
						2" Ice	48.95	48.95	2.7
						4" Ice	69.43	69.43	4.3
***									
1900MHz RRH (65MHz)	A	From Leg	4.00	0.0000	167'	No Ice	2.70	2.77	0.1
(Carrier 167' E)			0'			1/2" Ice	2.94	3.01	0.1
			0'			1" Ice	3.18	3.26	0.1
						2" Ice	3.70	3.78	0.2
						4" Ice	4.85	4.93	0.4
1900MHz RRH (65MHz)	B	From Leg	4.00	0.0000	167'	No Ice	2.70	2.77	0.1
(Carrier 167' E)			0'			1/2" Ice	2.94	3.01	0.1
			0'			1" Ice	3.18	3.26	0.1
						2" Ice	3.70	3.78	0.2
						4" Ice	4.85	4.93	0.4

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
1900MHz RRH (65MHz) (Carrier 167' E)	C	From Leg	4.00 0' 0'	0.0000	167'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.70 2.94 3.18 3.70 4.85	2.77 3.01 3.26 3.78 4.93	0.1 0.1 0.1 0.2 0.4
800MHZ RRH (Carrier 167' E)	A	From Leg	4.00 0' 0'	0.0000	167'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.49 2.71 2.93 3.41 4.46	2.07 2.27 2.48 2.93 3.93	0.1 0.1 0.1 0.2 0.3
800MHZ RRH (Carrier 167' E)	B	From Leg	4.00 0' 0'	0.0000	167'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.49 2.71 2.93 3.41 4.46	2.07 2.27 2.48 2.93 3.93	0.1 0.1 0.1 0.2 0.3
800MHZ RRH (Carrier 167' E)	C	From Leg	4.00 0' 0'	0.0000	167'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.49 2.71 2.93 3.41 4.46	2.07 2.27 2.48 2.93 3.93	0.1 0.1 0.1 0.2 0.3
Side Arm Mount [SO 102-3] (Carrier 167' E)	C	None		0.0000	167'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.00 3.48 3.96 4.92 6.84	3.00 3.48 3.96 4.92 6.84	0.1 0.1 0.1 0.2 0.3
***									
APXVSPP18-C-A20 w/ Mount Pipe (Carrier 165' E)	A	From Leg	4.00 0' 0'	0.0000	165'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.50 9.15 9.77 11.03 13.68	6.95 8.13 9.02 10.84 14.85	0.1 0.2 0.2 0.4 0.9
APXVSPP18-C-A20 w/ Mount Pipe (Carrier 165' E)	B	From Leg	4.00 0' 0'	0.0000	165'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.50 9.15 9.77 11.03 13.68	6.95 8.13 9.02 10.84 14.85	0.1 0.2 0.2 0.4 0.9
APXVSPP18-C-A20 w/ Mount Pipe (Carrier 165' E)	C	From Leg	4.00 0' 0'	0.0000	165'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.50 9.15 9.77 11.03 13.68	6.95 8.13 9.02 10.84 14.85	0.1 0.2 0.2 0.4 0.9
(3) ACU-A20-N (Carrier 165' E)	A	From Leg	4.00 0' 0'	0.0000	165'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.08 0.12 0.17 0.30 0.67	0.14 0.19 0.25 0.40 0.80	0.0 0.0 0.0 0.0 0.0
(3) ACU-A20-N (Carrier 165' E)	B	From Leg	4.00 0' 0'	0.0000	165'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.08 0.12 0.17 0.30 0.67	0.14 0.19 0.25 0.40 0.80	0.0 0.0 0.0 0.0 0.0
(3) ACU-A20-N (Carrier 165' E)	C	From Leg	4.00 0' 0'	0.0000	165'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.08 0.12 0.17 0.30 0.67	0.14 0.19 0.25 0.40 0.80	0.0 0.0 0.0 0.0 0.0
800 EXTERNAL NOTCH	A	From Leg	4.00	0.0000	165'	No Ice	0.77	0.37	0.0

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
FILTER			0'			1/2" Ice	0.89	0.46	0.0
(Carrier 165' E)			0'			1" Ice	1.02	0.56	0.0
						2" Ice	1.30	0.79	0.0
						4" Ice	1.97	1.34	0.1
800 EXTERNAL NOTCH FILTER	B	From Leg	4.00	0.0000	165'	No Ice	0.77	0.37	0.0
			0'			1/2" Ice	0.89	0.46	0.0
(Carrier 165' E)			0'			1" Ice	1.02	0.56	0.0
						2" Ice	1.30	0.79	0.0
						4" Ice	1.97	1.34	0.1
800 EXTERNAL NOTCH FILTER	C	From Leg	4.00	0.0000	165'	No Ice	0.77	0.37	0.0
			0'			1/2" Ice	0.89	0.46	0.0
(Carrier 165' E)			0'			1" Ice	1.02	0.56	0.0
						2" Ice	1.30	0.79	0.0
						4" Ice	1.97	1.34	0.1
6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	165'	No Ice	1.43	1.43	0.0
(Carrier 165' E)			0'			1/2" Ice	1.92	1.92	0.0
			0'			1" Ice	2.29	2.29	0.0
						2" Ice	3.06	3.06	0.1
						4" Ice	4.70	4.70	0.2
6' x 2" Mount Pipe	B	From Leg	4.00	0.0000	165'	No Ice	1.43	1.43	0.0
(Carrier 165' E)			0'			1/2" Ice	1.92	1.92	0.0
			0'			1" Ice	2.29	2.29	0.0
						2" Ice	3.06	3.06	0.1
						4" Ice	4.70	4.70	0.2
6' x 2" Mount Pipe	C	From Leg	4.00	0.0000	165'	No Ice	1.43	1.43	0.0
(Carrier 165' E)			0'			1/2" Ice	1.92	1.92	0.0
			0'			1" Ice	2.29	2.29	0.0
						2" Ice	3.06	3.06	0.1
						4" Ice	4.70	4.70	0.2
Platform Mount [LP 601-1]	C	None		0.0000	165'	No Ice	28.47	28.47	1.1
(Carrier 165' E)						1/2" Ice	33.59	33.59	1.5
						1" Ice	38.71	38.71	1.9
						2" Ice	48.95	48.95	2.7
						4" Ice	69.43	69.43	4.3
***									
(4) DB844H90 w/ Mount Pipe	A	From Leg	4.00	0.0000	155'	No Ice	3.30	4.92	0.0
			0'			1/2" Ice	3.69	5.60	0.1
(Carrier 155' E)			3'			1" Ice	4.12	6.28	0.1
						2" Ice	5.01	7.71	0.2
						4" Ice	6.92	10.83	0.6
(4) DB844H90 w/ Mount Pipe	B	From Leg	4.00	0.0000	155'	No Ice	3.30	4.92	0.0
			0'			1/2" Ice	3.69	5.60	0.1
(Carrier 155' E)			3'			1" Ice	4.12	6.28	0.1
						2" Ice	5.01	7.71	0.2
						4" Ice	6.92	10.83	0.6
(4) DB844H90 w/ Mount Pipe	C	From Leg	4.00	0.0000	155'	No Ice	3.30	4.92	0.0
			0'			1/2" Ice	3.69	5.60	0.1
(Carrier 155' E)			3'			1" Ice	4.12	6.28	0.1
						2" Ice	5.01	7.71	0.2
						4" Ice	6.92	10.83	0.6
Platform Mount [LP 602-1]	C	None		0.0000	155'	No Ice	32.03	32.03	1.3
(Carrier 155' E)						1/2" Ice	38.71	38.71	1.8
						1" Ice	45.39	45.39	2.3
						2" Ice	58.75	58.75	3.2
						4" Ice	85.47	85.47	5.0
***									
ERICSSON AIR 21 B2A	A	From Leg	4.00	0.0000	145'	No Ice	6.83	5.64	0.1

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
B4P w/ Mount Pipe			0'				1/2" Ice	7.35	6.48	0.2
(Carrier 145' P)			3'				1" Ice	7.86	7.26	0.2
							2" Ice	8.93	8.86	0.4
							4" Ice	11.18	12.29	0.8
ERICSSON AIR 21 B2A	B	From Leg	4.00		0.0000	145'	No Ice	6.83	5.64	0.1
B4P w/ Mount Pipe			0'				1/2" Ice	7.35	6.48	0.2
(Carrier 145' P)			3'				1" Ice	7.86	7.26	0.2
							2" Ice	8.93	8.86	0.4
							4" Ice	11.18	12.29	0.8
ERICSSON AIR 21 B2A	C	From Leg	4.00		0.0000	145'	No Ice	6.83	5.64	0.1
B4P w/ Mount Pipe			0'				1/2" Ice	7.35	6.48	0.2
(Carrier 145' P)			3'				1" Ice	7.86	7.26	0.2
							2" Ice	8.93	8.86	0.4
							4" Ice	11.18	12.29	0.8
ERICSSON AIR 21 B4A	A	From Leg	4.00		0.0000	145'	No Ice	6.83	5.64	0.1
B2P w/ Mount Pipe			0'				1/2" Ice	7.35	6.48	0.2
(Carrier 145' P)			3'				1" Ice	7.86	7.26	0.2
							2" Ice	8.93	8.86	0.4
							4" Ice	11.18	12.29	0.8
ERICSSON AIR 21 B4A	B	From Leg	4.00		0.0000	145'	No Ice	6.83	5.64	0.1
B2P w/ Mount Pipe			0'				1/2" Ice	7.35	6.48	0.2
(Carrier 145' P)			3'				1" Ice	7.86	7.26	0.2
							2" Ice	8.93	8.86	0.4
							4" Ice	11.18	12.29	0.8
ERICSSON AIR 21 B4A	C	From Leg	4.00		0.0000	145'	No Ice	6.83	5.64	0.1
B2P w/ Mount Pipe			0'				1/2" Ice	7.35	6.48	0.2
(Carrier 145' P)			3'				1" Ice	7.86	7.26	0.2
							2" Ice	8.93	8.86	0.4
							4" Ice	11.18	12.29	0.8
KRY 112 144/1	A	From Leg	4.00		0.0000	145'	No Ice	0.41	0.20	0.0
(Carrier 145' P)			0'				1/2" Ice	0.50	0.27	0.0
			3'				1" Ice	0.59	0.35	0.0
							2" Ice	0.81	0.53	0.0
							4" Ice	1.36	1.00	0.1
KRY 112 144/1	B	From Leg	4.00		0.0000	145'	No Ice	0.41	0.20	0.0
(Carrier 145' P)			0'				1/2" Ice	0.50	0.27	0.0
			3'				1" Ice	0.59	0.35	0.0
							2" Ice	0.81	0.53	0.0
							4" Ice	1.36	1.00	0.1
KRY 112 144/1	C	From Leg	4.00		0.0000	145'	No Ice	0.41	0.20	0.0
(Carrier 145' P)			0'				1/2" Ice	0.50	0.27	0.0
			3'				1" Ice	0.59	0.35	0.0
							2" Ice	0.81	0.53	0.0
							4" Ice	1.36	1.00	0.1
Platform Mount [LP 601-1]	C	None			0.0000	145'	No Ice	28.47	28.47	1.1
(Carrier 145' E)							1/2" Ice	33.59	33.59	1.5
							1" Ice	38.71	38.71	1.9
							2" Ice	48.95	48.95	2.7
							4" Ice	69.43	69.43	4.3
***										
800 10504 w/ Mount Pipe	A	From Leg	4.00		0.0000	135'	No Ice	3.59	3.18	0.0
(Carrier 135' E)			0'				1/2" Ice	4.01	3.91	0.1
			2'				1" Ice	4.42	4.58	0.1
							2" Ice	5.34	5.98	0.2
							4" Ice	7.38	8.98	0.5
800 10504 w/ Mount Pipe	B	From Leg	4.00		0.0000	135'	No Ice	3.59	3.18	0.0
(Carrier 135' E)			0'				1/2" Ice	4.01	3.91	0.1

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			2'			1" Ice	4.42	4.58	0.1
						2" Ice	5.34	5.98	0.2
						4" Ice	7.38	8.98	0.5
800 10504 w/ Mount Pipe (Carrier 135' E)	C	From Leg	4.00 0' 2'	0.0000	135'	No Ice	3.59	3.18	0.0
						1/2" Ice	4.01	3.91	0.1
						1" Ice	4.42	4.58	0.1
						2" Ice	5.34	5.98	0.2
						4" Ice	7.38	8.98	0.5
860 10025 (Carrier 135' E)	A	From Leg	4.00 0' 2'	0.0000	135'	No Ice	0.18	0.15	0.0
						1/2" Ice	0.25	0.21	0.0
						1" Ice	0.33	0.29	0.0
						2" Ice	0.51	0.47	0.0
						4" Ice	0.98	0.93	0.1
860 10025 (Carrier 135' E)	B	From Leg	4.00 0' 2'	0.0000	135'	No Ice	0.18	0.15	0.0
						1/2" Ice	0.25	0.21	0.0
						1" Ice	0.33	0.29	0.0
						2" Ice	0.51	0.47	0.0
						4" Ice	0.98	0.93	0.1
860 10025 (Carrier 135' E)	C	From Leg	4.00 0' 2'	0.0000	135'	No Ice	0.18	0.15	0.0
						1/2" Ice	0.25	0.21	0.0
						1" Ice	0.33	0.29	0.0
						2" Ice	0.51	0.47	0.0
						4" Ice	0.98	0.93	0.1
(2) 6' x 2" Mount Pipe (Carrier 135' E)	A	From Leg	4.00 0' 2'	0.0000	135'	No Ice	1.43	1.43	0.0
						1/2" Ice	1.92	1.92	0.0
						1" Ice	2.29	2.29	0.0
						2" Ice	3.06	3.06	0.1
						4" Ice	4.70	4.70	0.2
(2) 6' x 2" Mount Pipe (Carrier 135' E)	B	From Leg	4.00 0' 2'	0.0000	135'	No Ice	1.43	1.43	0.0
						1/2" Ice	1.92	1.92	0.0
						1" Ice	2.29	2.29	0.0
						2" Ice	3.06	3.06	0.1
						4" Ice	4.70	4.70	0.2
(2) 6' x 2" Mount Pipe (Carrier 135' E)	C	From Leg	4.00 0' 2'	0.0000	135'	No Ice	1.43	1.43	0.0
						1/2" Ice	1.92	1.92	0.0
						1" Ice	2.29	2.29	0.0
						2" Ice	3.06	3.06	0.1
						4" Ice	4.70	4.70	0.2
T-Arm Mount [TA 602-3] (Carrier 135' E)	C	None		0.0000	135'	No Ice	11.59	11.59	0.8
						1/2" Ice	15.44	15.44	1.0
						1" Ice	19.29	19.29	1.2
						2" Ice	26.99	26.99	1.6
						4" Ice	42.39	42.39	2.5

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice

Comb. No.	Description
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	14	72.9	0.0	-0.0
	Max. H_x	11	52.4	45.2	0.1
	Max. H_z	2	52.4	0.1	45.1
	Max. M_x	2	6270.0	0.1	45.1
	Max. M_z	5	6286.1	-45.2	-0.1
	Max. Torsion	12	0.7	39.2	22.6
	Min. Vert	11	52.4	45.2	0.1
	Min. H_x	5	52.4	-45.2	-0.1
	Min. H_z	8	52.4	-0.1	-45.1
	Min. M_x	8	-6271.1	-0.1	-45.1
	Min. M_z	11	-6287.3	45.2	0.1
	Min. Torsion	6	-0.7	-39.2	-22.6

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	185 - 149.497	48.867	37	2.3036	0.0009
L2	154.503 - 114.096	34.535	37	2.1315	0.0007
L3	119.904 - 76.6771	20.515	37	1.6733	0.0004
L4	83.3229 - 38.2552	9.674	37	1.1093	0.0002
L5	45.7474 - 0	2.903	37	0.5725	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
185'	(2) DB846F65ZAXY w/ Mount Pipe	37	48.867	2.3036	0.0010	34813
182'	ASP-601	37	47.426	2.2919	0.0010	34813
175'	(2) 7770.00 w/ Mount Pipe	37	44.072	2.2629	0.0009	17406
167'	1900MHz RRH (65MHz)	37	40.283	2.2226	0.0008	9669
165'	APXVSPP18-C-A20 w/ Mount Pipe	37	39.346	2.2108	0.0008	8702
155'	(4) DB844H90 w/ Mount Pipe	37	34.758	2.1360	0.0007	5860
145'	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	37	30.372	2.0302	0.0006	4932
135'	800 10504 w/ Mount Pipe	37	26.230	1.8989	0.0005	4316

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	185 - 149.497	140.504	12	6.6327	0.0025
L2	154.503 - 114.096	99.363	12	6.1386	0.0019
L3	119.904 - 76.6771	59.077	12	4.8209	0.0011
L4	83.3229 - 38.2552	27.880	12	3.1974	0.0006
L5	45.7474 - 0	8.371	12	1.6508	0.0003

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
185'	(2) DB846F65ZAXY w/ Mount Pipe	12	140.504	6.6327	0.0031	12432
182'	ASP-601	12	136.366	6.5991	0.0030	12432
175'	(2) 7770.00 w/ Mount Pipe	12	126.742	6.5158	0.0027	6215
167'	1900MHz RRH (65MHz)	12	115.865	6.4004	0.0024	3451
165'	APXVSPP18-C-A20 w/ Mount Pipe	12	113.177	6.3663	0.0023	3105
155'	(4) DB844H90 w/ Mount Pipe	12	100.005	6.1515	0.0019	2088
145'	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	12	87.408	5.8475	0.0016	1752
135'	800 10504 w/ Mount Pipe	12	75.506	5.4698	0.0014	1528

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	185 - 149.497 (1)	TP36.0404x29x0.25	35'6"	0'	0.0	39.00	27.6121	-8.1	1076.9	0.007
L2	149.497 - 114.096 (2)	TP42.4605x34.5478x0.3125	40'4-29/32"	0'	0.0	39.00	40.6776	-15.6	1586.4	0.010
L3	114.096 - 76.6771 (3)	TP49.157x40.6983x0.375	43'2-3/4"	0'	0.0	39.00	56.5149	-23.7	2204.1	0.011
L4	76.6771 - 38.2552 (4)	TP55.9285x47.1065x0.4375	45'27/32"	0'	0.0	39.00	75.0196	-34.9	2925.8	0.012
L5	38.2552 - 0 (5)	H1-3 (1.34 CR) - 4 TP62.5x53.5869x0.5	45'9"	0'	0.0	39.00	98.3940	-52.4	3837.4	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	185 - 149.497 (1)	TP36.0404x29x0.25	478.6	-24.21	39.00	0.621	0.0	0.00	39.00	0.000
L2	149.497 - 114.096 (2)	TP42.4605x34.5478x0.3125	1518.8	-44.26	39.00	1.135	0.0	0.00	39.00	0.000
L3	114.096 - 76.6771 (3)	TP49.157x40.6983x0.375	2821.5	-51.13	39.00	1.311	0.0	0.00	39.00	0.000
L4	76.6771 - 38.2552 (4)	TP55.9285x47.1065x0.4375	4309.3	-51.72	39.00	1.326	0.0	0.00	39.00	0.000
L5	38.2552 - 0 (5)	TP62.5x53.5869x0.5	6295.8	-50.20	39.00	1.287	0.0	0.00	39.00	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	185 - 149.497 (1)	TP36.0404x29x0.25	0.007	0.621	0.000	0.628 ✔	1.333	H1-3 ✔
L2	149.497 - 114.096 (2)	TP42.4605x34.5478x0.3125	0.010	1.135	0.000	1.145 ✔	1.333	H1-3 ✔
L3	114.096 - 76.6771 (3)	TP49.157x40.6983x0.375	0.011	1.311	0.000	1.322 ✔	1.333	H1-3 ✔
L4	76.6771 - 38.2552 (4)	TP55.9285x47.1065x0.4375	0.012	1.326	0.000	**1.338** ✔	1.333	H1-3 ✔
L5	38.2552 - 0 (5)	TP62.5x53.5869x0.5	0.014	1.287	0.000	1.301 ✔	1.333	H1-3 ✔

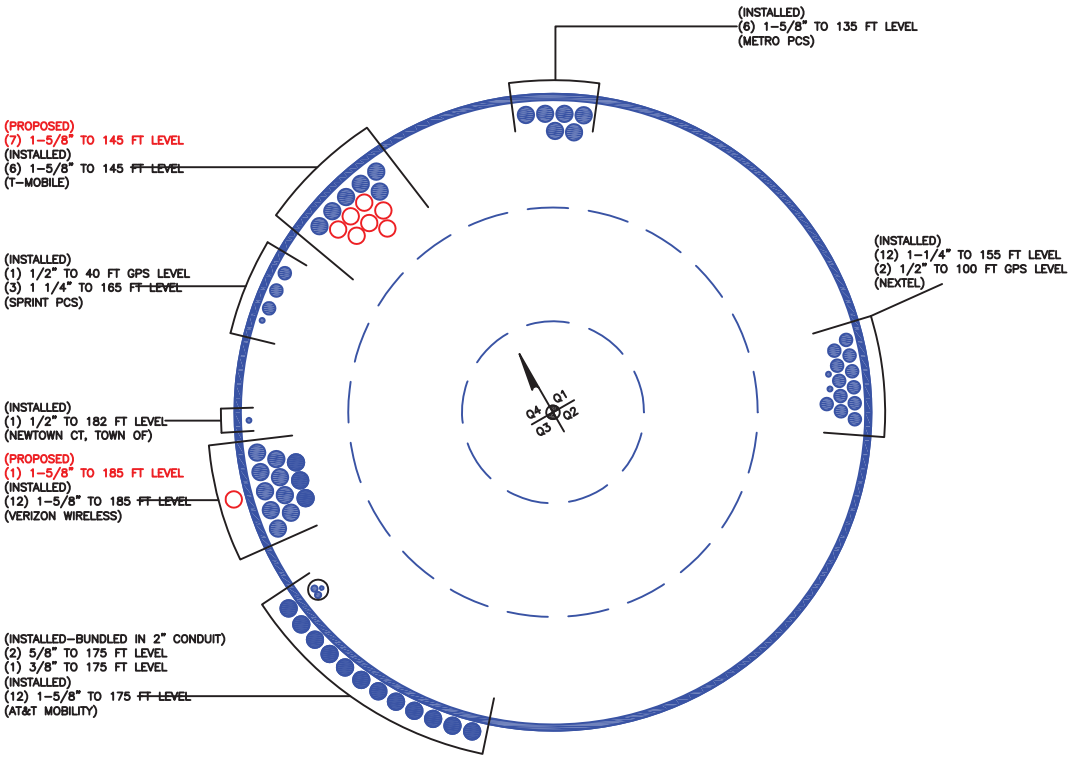
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	185 - 149.497	Pole	TP36.0404x29x0.25	1	-8.1	1435.5	47.1	Pass
L2	149.497 - 114.096	Pole	TP42.4605x34.5478x0.3125	2	-15.6	2114.7	85.9	Pass
L3	114.096 - 76.6771	Pole	TP49.157x40.6983x0.375	3	-23.7	2938.0	99.2	Pass
L4	76.6771 - 38.2552	Pole	TP55.9285x47.1065x0.4375	4	-34.9	3900.1	100.4	Acceptable
L5	38.2552 - 0	Pole	TP62.5x53.5869x0.5	5	-52.4	5115.2	97.6	Pass
						Summary		
						Pole (L4)	100.4	Acceptable
						RATING =	**100.4**	**Acceptable**

APPENDIX B

BASE LEVEL DRAWING

TX LINE LAYOUT



BUSINESS UNIT: 806354 TOWER ID: C_BASELEVEL

Clients

CROWN CASTLE

Professional Stamp

Revisions

No.	Description	Date
A	ISSUED FOR REVIEW	03.27.14

Engineering Firm

P-SEC

ph: 519-885-3806
fx: 519-886-0076
www.p-sec.ca

PIER STRUCTURAL ENGINEERING CORP
55 NORTHFIELD DR. E, SUITE 198
WATERLOO, ON N2K 3T6

PSEC Job No.

10862

Site Name

806354
BRG 123 943084

Site Design

Sheet Title

TX LINES

Drawn by	Sheet
AI	A-1
Checked by	
Approved By	

APPENDIX C

ADDITIONAL CALCULATIONS

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev F

Site Data

BU#:	*806354*
Site Name:	*BRG 123 943084*
App #:	*222738 , Rev # 0*
Pole Manufacturer:	*Other*

Reactions		
Moment:	6296	ft-kips
Axial:	52	kips
Shear:	45	kips

Anchor Rod Data		
Qty:	24	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	73	in

Plate Data		
Diam:	79	in
Thick:	2.5	in
Grade:	60	ksi
Single-Rod B-eff:	8.27	in

Stiffener Data (Welding at both sides)		
Config:	1	*
Weld Type:	Fillet	
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:	0.5	in
Fillet V. Weld:	0.375	in
Width:	7	in
Height:	15	in
Thick:	0.75	in
Notch:	0.5	in
Grade:	50	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	62.5	in
Thick:	0.5	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

If No stiffeners, Criteria:	AISC ASD	<-Only Applcable to Unstiffened Cases

Anchor Rod Results

		Stiffened
Maximum Rod Tension:	170.3 Kips	Service, ASD
Allowable Tension:	195.0 Kips	Fty*ASIF
Anchor Rod Stress Ratio:	87.4% Pass	

Base Plate Results

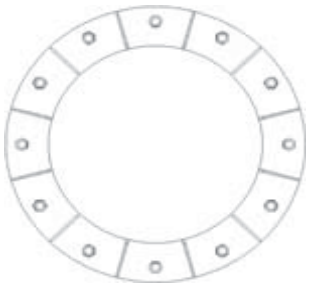
	Flexural Check	Stiffened
Base Plate Stress:	31.6 ksi	Service, ASD
Allowable Plate Stress:	60.0 ksi	0.75*Fy*ASIF
Base Plate Stress Ratio:	52.6% Pass	Y.L. Length: N/A, Roark

Stiffener Results

Horizontal Weld :	90.4% Pass
Vertical Weld:	62.5% Pass
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	32.3% Pass
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	65.7% Pass
Plate Comp. (AISC Bracket):	84.4% Pass

Pole Results

Pole Punching Shear Check:	15.7% Pass



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Moment Capacity of Drilled Concrete Shaft (Caisson) for TIA Rev F or G

Note: Shaft assumed to have ties, not spiral, transverse reinforcing

Site Data

BU#: *806354*
Site Name: *BRG 123 943084*
App #: *222738 , Rev # 0*

Maximum Shaft Superimposed Forces		
TIA Revision:	F	
Max. Service Shaft M:	6476	ft-kips **(* Note)**
Max. Service Shaft P:	52	kips
Max Axial Force Type:	Comp.	

(*) Note: Max Shaft Superimposed Moment does not necessarily equal to the shaft top reaction moment

Enter Load Factors Below:		
For M (WL)	1.3	<---- Enter Factor
For P (DL)	1.3	<---- Enter Factor

Load Factor	Shaft Factored Loads		
1.30	Mu:	8418.8	ft-kips
1.30	Pu:	67.6	kips

Pier Properties		
Concrete:		
Pier Diameter =	8.0	ft
Concrete Area =	7238.2	in^2
Reinforcement:		
Clear Cover to **Tie**=	3.00	in
Horiz. **Tie** Bar Size=	4	
Vert. Cage Diameter =	7.32	ft
Vert. Cage Diameter =	87.87	in
Vertical Bar Size =	9	
Bar Diameter =	1.13	in
Bar Area =	1	in^2
Number of Bars =	48	
As Total=	48	in^2
A s/ Aconc, Rho:	0.0066	0.66%

Material Properties		
Concrete Comp. strength, f'c =	4000	psi
Reinforcement yield strength, Fy =	60	ksi
Reinforcing Modulus of Elasticity, E =	29000	ksi
Reinforcement yield strain =	0.00207	
Limiting compressive strain =	0.003	
ACI 318 Code		
Select Analysis ACI Code=	2005	
Seismic Properties		
Seismic Design Category =	C	
Seismic Risk =	**Moderate**	

Solve (Run) <-- Press Upon Completing All Input

ACI 10.5 , ACI 21.10.4, and IBC 1810.
Min As for Flexural, Tension Controlled, Shafts:

(3)*(Sqrt(f'c)/Fy:	0.0032	
200 / Fy:	0.0033	
IBC 1810.1.2:	0.0025	SDC C
Governing:	0.0033	**0.33%**

ACI 10.8 and 10.9
Min As for Columns, Comp. Controlled, Shafts:

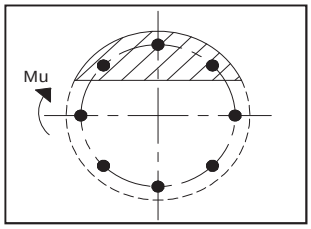
Min As:	0.0050	**0.50%**

Minimum Rho Check:

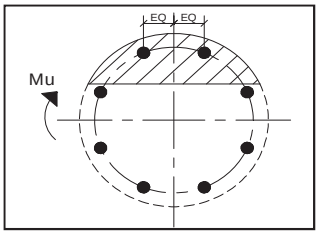
Actual Req'd Min. Rho:	0.33%	Flexural
Provided Rho:	0.66%	OK

Results:

Governing Orientation Case: **1**



Case 1



Case 2

Dist. From Edge to Neutral Axis:	**14.13**	in
Extreme Steel Strain, ϵt:	**0.0165**	
	ϵt > 0.0050, Tension Controlled	
Reduction Factor,φ:	**0.900**	

<-- Comment Box

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = (φ=0.65) Pn.		
Pn per ACI 318 (10-2)	14209.93	kips
at Mu=(ϕ=0.65)Mn=	9962.72	ft-kips
Max Tu, (φ=0.9) Tn =	2592	kips
at Mu=ϕ=(0.90)Mn=	0.00	ft-kips

Output Note: Negative Pu=Tension

For Axial Compression, φ Pn = Pu:	67.60	kips
Drilled Shaft Moment Capacity, φMn:	**8959.73**	ft-kips
Drilled Shaft Superimposed Mu:	**8418.80**	ft-kips

(Mu/φMn, Drilled Shaft Flexure CSR:	**93.96%**

P-SEC
PIER STRUCTURAL ENGINEERING CORP.

PROJECT No:	10862	ENG:	AI
PROJECT NAME:	806354 - BRG 123 943084	CHK:	SH
	CROWN CASTLE		
DATE:	27/03/2014 12:50	PAGE:	of

EIA-222-F

SINGLE GLOBAL FOUNDATION WITH PIER(s) CHECKS

Capacity up to 105% considered accepable

Global Tower Reactions		*Allowable Loads*		*Calculated Reactions*		Allowable Resistance				SF=2.09
○TIA-G	Maximum Moment	6,296.00	k-ft	Disturbing Moment	6,611.0	6,895.1	k-ft	PASS	95.9%	[GOVERNS]
◉EIA-F	Axial Load	52.00	kips	Maximum Bearing	3.48	6.00	kips	PASS	58.0%	
	Shear Load	45.00	kips	Punching Shear	854.1	3,025.5	kips	PASS	28.2%	
	Pier Rebar Required	(47) # 9 @ 7.66 in **MINIMUM**		Actual Pier Rebar		(48) # 9 verts **Check with other software**				
	Pad Rebar Required	(24) # 9 @ 14.35 in		Actual Pad Rebar		(45) # 9 bars		PASS	54.2%	

Soil Parameters	Soils Report		Pier Geometry			Pad Geometry		
ϕ	30.0	°	Qty of Piers	1		Width (Bm)	28.00	ft
Water Level	20.00	ft (6.10 m)	Width (Bp)	8.00	ft	Width (Wm)	28.00	ft
Soil Dry Density (γ_{dry})	0.120	kcf (18.8 kN/m^3)	Width (Wp)	8.00	ft	Height (Hm)	3.00	ft
Soil Sub Density (γ_{sub})	0.057	kcf (8.95 kN/m^3)	Height (Hp)	4.00	ft	Depth (D)	6.00	ft
All. Bearing Pressure	6.000	ksf (287.3 kPa)	Pier Type	S	(Rnd or Sq)	☐ Check if Mat is a Square Bell (This is for small foundations)		
Bearing Safety Factor	2		Conc γ_{dry}	0.150	kcf (23.6)			

Volume of Concrete/Soil

	Concrete (96.6cuyd) 1 Pier	Mat	Soil	
Depth (above)	1.00	--	--	ft
Depth (dry)	3.00	3.00	3.00	ft
Depth (submerged)	0.00	0.00	0.00	ft
Volume (above)	64.00	--	--	ft^3
Volume (dry)	192.00	2,352.00	2462.98	ft^3
Volume (submerged)	0.00	0	0.00	ft^3
Total	256	2352	2463	ft^3

Concrete Reinforcing Design

f'c	4.000	ksi	(27.6 MPa)	
fy	60.000	ksi	(413.7 MPa)	
	MAT		PIER	
Steel (Metric/ASTM)	ASTM		ASTM	
Bar Quantity	45		48	
Bar size	9	#	9	#
	1.000	in²	1.000	in²

Slab Reinforcing

½ Disturbing Moment	3305.50	kip-ft			
Ku	120.40		Wgt of Rebar		
ρ	0.00227		8,983	lbs	
4/3•ρ if ρ < ρ min	0.00303				
ρ min ≥ 0.0018	0.00180		24	Qty	
As Required (based on ρ)	23.908	in²	14.35	in c/c	
As Actual	45.000	in² ϕMn=	6,101.5	kip-ft	

Note: The 1/2 moment is derived from a bending moment diagram that considered the uplift and download components at the exact face width of the tower.

Calculations

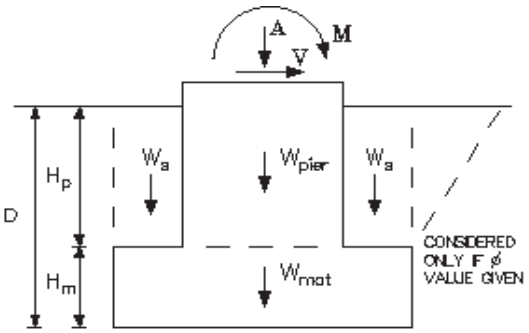
	Factored	Allowable	
Axial Download	--	52.0	kips
Weight of Concrete (not factored)	--	391.2	kips(96.6yds)
Weight of Soil (not factored)	--	295.6	kips
Total Download (P)	--	738.8	kips
Resisting Moment Arm	--	14.0	ft
Moment Resistance	--	6895.1	k-ft
		(divide by 1.5 - cl. 7.2.4.5)	

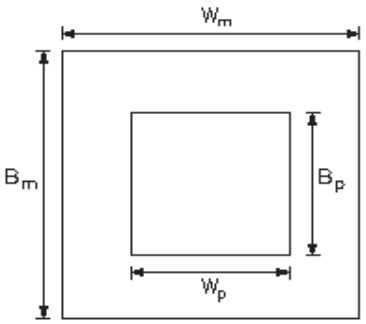
Bearing Capacity Check

Contact Area	--	784.00	ft²
Calculate eccentricity e	--	8.95	ft [>L/6]
Calculate (c = L/2 - e)	--	5.05	ft
1) q_{max} = P/A • (1+6e/L)	--	--	
2) q_{max} = 2P / b•3c	--	3.48	ksf [GOV]
q allowable	--	6.00	ksf
		(not factored)	

Check for 2-Way Shear (Punching)

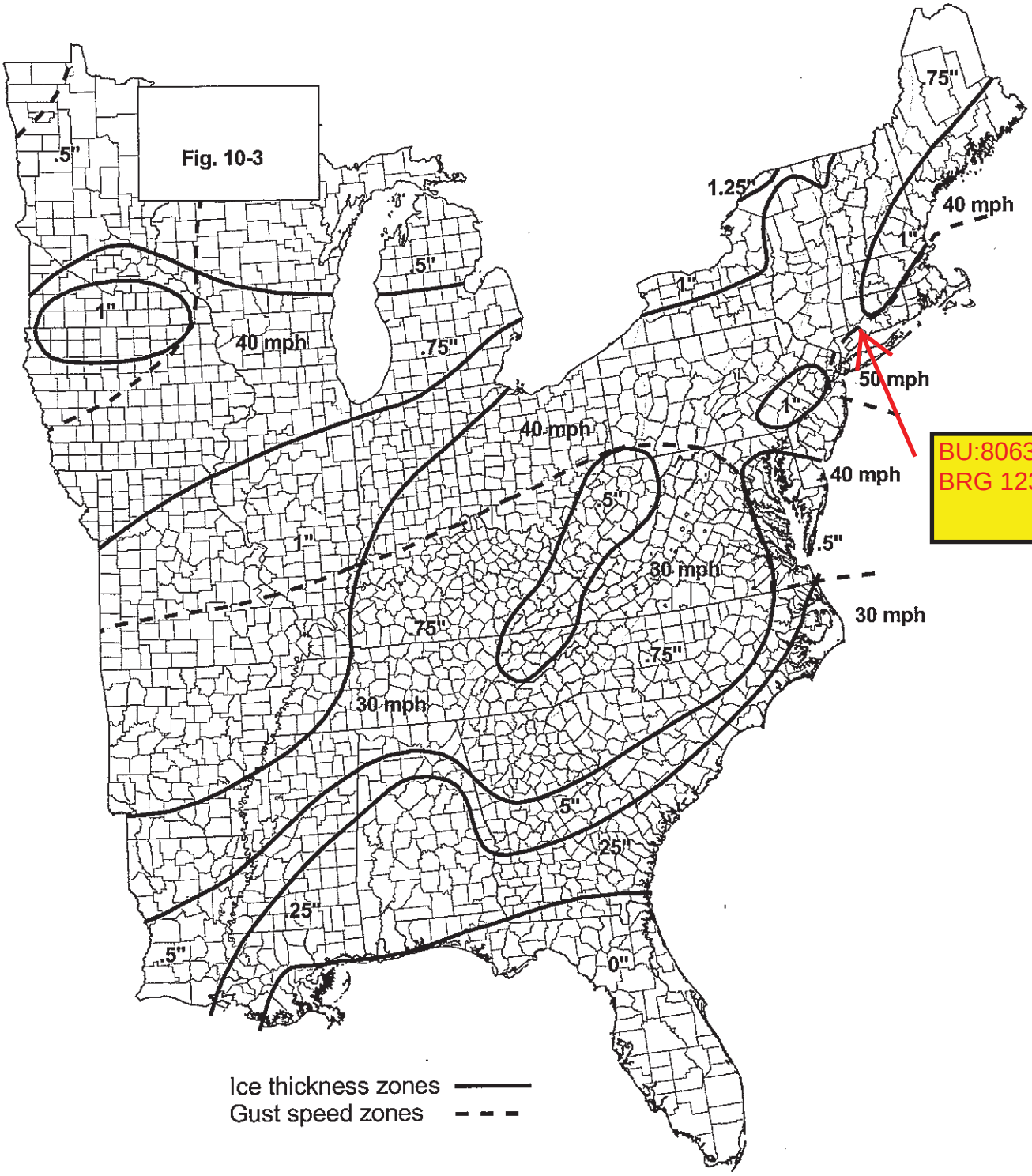
Shear Area (b_o x d)	--	110.74	ft²
Factored Bearing Stress	--	1.27	ksf
Factored Shear Force	--	854.14	kips
Factored Shear Resistance	--	3025.5	kips
Check for 2-way Shear	--	0.28	
		(ACI-318)	





M =	6296.0	k-ft
A =	52.0	kips
V =	45.0	kips
Bp =	8.00	ft
Wp =	8.00	ft
Hp =	4.00	ft
Bm =	28.00	ft
Wm =	28.00	ft
Hm =	3.00	ft
D =	6.00	ft
V_{mat} =	2608.0	cuft

Rebar = (24) # 9 @ 14.35 in



BU:806354
BRG 123 943084

FIGURE 10-2 (continued) 50-YEAR MEAN RECURRENCE INTERVAL UNIFORM ICE THICKNESSES DUE TO FREEZING RAIN WITH CONCURRENT 3-SECOND GUST SPEEDS: CONTIGUOUS 48 STATES.

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RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11123A

Newtown / I-84 / X10-11

21-23 Berkshire Road
Newtown, CT 06470

April 10, 2014

EBI Project Number: 62142262

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
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April 10, 2014

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Re: Emissions Values for Site: **CT11123A - Newtown / I-84 / X10-11**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at 21-23 Berkshire Road, Newtown, CT, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (µW/cm2). The number of µW/cm2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (µW/cm2). The general population exposure limit for the cellular band is 567 µW/cm2, and the general population exposure limit for the PCS and AWS bands is 1000 µW/cm2. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 21-23 Berkshire Road, Newtown, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, the actual antenna pattern gain value in the direction of the sample area was used. For this report the sample point is a 6 foot person standing at the base of the tower

For all calculations, all equipment was calculated using the following assumptions:

1) 2 GSM channels (1940.000 MHz—to 1950.000 MHz) were considered for each sector of the proposed installation.
2) 2 UMTS channels (2110.000 MHz to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation.
3) 2 LTE channels (2110.000 MHz to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation.
4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
5) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
6) The antenna used in this modeling is the Ericsson AIR21 for LTE, UMTS and GSM. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 15.6 dBd gain value at its main lobe. Actual antenna gain values were used for all calculations as per the manufacturers specifications.

7) The antenna mounting height centerline of the proposed antennas is **148 feet** above ground level (AGL).
8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculation were done with respect to uncontrolled / general public threshold limits.

Site ID	CT11123A - Newtown / I-84 / X10-11
Site Addresss	21-23 Berkshire Road, Newtown, CT 06470
Site Type	Monopole

Sector 1

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	148	142	None	0	0	48.326044	0.86161	0.08616%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	148	142	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	148	142	1-5/8"	0	0	24.163022	0.430805	0.04308%
2B	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	148	142	1-5/8"	0	0	24.163022	0.430805	0.04308%
														Sector total Power Density Value:		0.172%	

Sector 2

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	148	142	None	0	0	48.326044	0.86161	0.08616%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	148	142	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	148	142	1-5/8"	0	0	24.163022	0.430805	0.04308%
2b	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	148	142	1-5/8"	0	0	24.163022	0.430805	0.04308%
														Sector total Power Density Value:		0.172%	

Sector 3

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	148	142	None	0	0	48.326044	0.86161	0.08616%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	148	142	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	148	142	1-5/8"	0	0	24.163022	0.430805	0.04308%
2b	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	148	142	1-5/8"	0	0	24.163022	0.430805	0.04308%
														Sector total Power Density Value:		0.172%	

Site Composite MPE %	
Carrier	MPE %
T-Mobile	0.517%
AT&T	9.130%
MetroPCS	2.630%
Verizon Wireless	15.470%
Sprint	4.130%
Nextel	2.370%
Total Site MPE %	**34.247%**

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Summary

All calculations performed for this analysis yielded results that were well within the allowable limits for general public exposure to RF Emissions.

The anticipated Maximum Composite contributions from the T-Mobile facility are **0.517% (0.172% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously.

The anticipated composite MPE value for this site assuming all carriers present is **34.247%** of the allowable FCC established general public limit. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803